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EDITED BY J. ADAMS ALLEN, M.D., LL.D.; AND WALTER HAY, M.D.

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ARTICLE I.—*Hamlet's Insanity.* By HORATIO R. BIGELOW, M.D.,
Boston, Mass.

Were it not for the fact of its recent revival, it would seem to be scarcely necessary to revivify the old discussion which modern inquiry had so satisfactorily laid to rest. In his recent lecture in New York City, Mr. Mac Donald not only emphatically asserted his conviction of Hamlet's sanity, but even ventured the statement that no student of the present day believed otherwise.

With this latter we have little to do, for he who has followed the scientific inquiry with which the past decade has been rich and rife, can easily confute so rash and venturesome a tale, by citing the opinions of pathologists, psychologists and physiologists of acknowledged ability. Strange too, it is, that in the face of evidence and fact, Mr. Mac Donald should have thus committed himself; for since the occasion was a public one, his words become legitimate subjects of criticism. The facts which were adduced to establish the sanity of Hamlet, were so weak, so illogically put together, and so entirely contradictory, as to militate against the

celebrity of the lecturer, rather than add to his trans-Atlantic reputation.

Before coming to the ultimate discussion, it will be necessary, by way of preface, to form some definite ideas upon the following points:

1. What mental condition is it, which entitles any one to judge of the creations of genius or to read the secrets of the minds of others?
2. What is insanity?
3. How may it be caused?
4. What are its divisions?
5. Was the creation under observation—Hamlet—insane?

The necessarily narrow limits to which journal articles are restricted will be one excuse for the brief manner in which each of these divisions will be treated; but if some new field of thought be opened up to the unbiased student, one object will be attained. The extent of our adaptation to external realities by prototypical cerebral reaction will be the measure of our mental astuteness; the more harmonious the creation and outward action of our ideas, the more fitly adapted are we to peer into the ideational reactions of others. The mere metaphysical, subjective introspect will avail us to no purpose; for the abstraction which is necessary for the performance of conscious scrutiny, withdraws from mental freedom, that which is necessary for its perfected entity, and creates abnormal existence in the object to be analyzed by self-consciousness. Thus, such a method, by rendering our own mental state unhealthy, is entirely incapacitated in its application to others. One idea must follow another in logical sequence, insensibly blending one with the other, as the wave motion of the wind travels over a field of grain, its residual force being transferred from cell to cell, creating in each its proper function. The force generated by wholesome thought is partially expended outwards, the residue furnishing the stimuli of future creation. If an idea fail to act in this manner, there ensues a prolonged tension of the ideational centre, and self-consciousness results. It is not by any subjective analysis of our own minds that we can correctly judge of others, but rather from a consideration of man's relationship to external objects; from the study of the higher faculties in the animal, as well as in all the phases of the human kingdom, the babe, the insane, the

idiot, and from the knowledge which we thus by acquisition attain, of the results which certain stimuli in the ideational cells bring about. That which we would do under similar surroundings, is no criterion of the action of others. Will is not an innate, constant quantity, but a variable force, arising from the experience of past generations, determining an event, but in no wise governing the means by which the end is consummated. Forgetting, so far as is possible, our consciousness in thought, (for when we once become conscious that we are thinking, an unhealthy action results), we must study the mind in all its varied phases of existence and action, and in this way only can we become polished critics.

2. What is insanity?

In reply to this question, we will give the definitions of two of the ablest thinkers, in the particular field of mental diseases, which our age has produced. Dr. Maudsley, of London, thus defines it: "A morbid derangement, generally chronic, of the supreme cerebral centres—the gray matter of the cerebral convolutions, or the intellectorium commune, giving rise to perverted freedom, defective or erroneous ideation, and discordant conduct conjointly or separately; and more or less incapacitating the individual for his due social relations."

Dr. Hammond, of New York, says: "A manifestation of disease of the brain by general or partial derangement of one or more faculties of the mind, and in which, while consciousness is not abolished, mental freedom is perverted, weakened or destroyed."

Mind then, it is presupposed, is the perfected force generated by the supreme or ideational centres, represented in the hemispherical convolutions and cortical cells of the brain. When these cells cease to react upon each other harmoniously, when an idea prolongs its tension so as to tyrannize over the understanding and become an absorbing entity, illusions and delusions result, and the person is pronounced insane. When the sensory ganglia are abnormally active or viciously constituted, their reflex and transmitted actions become disordered; we have, as a direct cause, hysteria, and indirectly, through the force transmitted upward, a phase of insanity.

It is important to remember, that mind is not an abstract, incomprehensible agent, but that it is a natural force, and that its location is the brain; that to call it into action, certain stimuli alone are needed. With this consideration fresh in our memory, we can better understand the chief point.

3. What are the causes of insanity?

Naturally, anything that will interfere with the healthy action of the mental function—inherited acquisition of vicious action; want of vitality in the nervous tissues; improper cerebral nutrition; association; shocks; excessive emotional activity; and various other causes which it would be superfluous to narrate. By far the most frequent cause, is the inherited tendency. The various neuroses, which, in every generation, and in members of the same generation, will often assume a variety of forms, will engender the peculiar abnormal psychological condition, which a sudden shock will develop into true insanity. The circumstances of life may imbue the mind with an idea so absolute, as to render the mental action secondary; the idea becomes morbidly conscious, it dwells constantly upon itself, and rears up the various unhealthy mental phenomena. Our associations may be such as to induce it. Many periods in the world's history have been characterized by such tyranny of action. The dancing epidemics, and the superstitions of every age, are samples. Constant communion with those imbued with such creeds, will taint, oftentimes, the healthiest mind. Religious fanaticism, excess of religious observance—the one a result of insanity, and the other a cause—have marked each step in the world's advance. Hamlet himself explains its cause, when he is made to say—

“So, oft it chances in particular men,
That for some vicious mole of nature in them,
As, in their birth, (wherein they are not guilty,
Since nature cannot choose his origin,)
By their o'ergrowth of some complexion,
Oft breaking down the pales and forts of reason.”*

It may result from the emotional condition. Spinoza has divided the emotions into three classes: 1. Pain; 2. Joy; 3. Desire. A morbid activity in any of the ganglia representing these conditions may transmit its poisoned tone upward, and upset the reason. Visceral disease may cause a variety in this way: a sense of the existing trouble is transmitted through the proper channels to the sensory ganglia; these become unduly active, and send upward false impressions to the brain. The idea, thus excited, becomes dominant, directing its sole attention to the affected organ, exaggerating

* Act 1, Scene 4.

its defect, creating an infinity of ailments, and we have one form of hypochondria.

4. What are its divisions?

It is sufficient for our present purposes, to adopt the usually received division of Esquirol :

Mania,	{	Acute.
		Chronic.
		Recurrent.
Monomania.		
Melancholia.		
Moral Insanity.		
Dementia,	{	Primary.
		Secondary.
Idiocy.		
General Paralysis.		

It will not be necessary to dwell at length upon this head, or upon the localization of the various lesions; a proper consideration will enable us without difficulty to recognize the different mental departments or divisions involved in each.

5. If we have considered carefully the nature and causes of insanity and the regular working of the human mind, much of seeming difficulty will be wiped away from the discussion of the final question. We can also, now, look more closely into Mr. Mac Donald's statements, and apply, as corroborative proof of Hamlet's insanity, the very facts which that lecturer adduced to maintain his own position—that of Hamlet's mental sanity. And first, what was the condition of the continent of Europe, in regard to its habits of thought, during the time of Hamlet's life, and for a period of years before that time? Every decade of that eventful century was marked by some peculiar general aberration of mind, which, commencing in a remote corner, rapidly spread its flight throughout the land, gathering in its ways old and young, rich and poor. The superstition of religion, the abstraction incident upon the peculiar studies so popular at that time, that peculiar psychological condition which inaugurated the orgies of St. Jean Baptiste in France, the dancing mania of Italy and in Germany, were the excrescences bursting out of the accumulated experience of generations, and which were generated by unhealthy mental condition. It was an age peculiarly fitted for the advancement of the most paradoxical theories, for the development of unnatural habits

of reverie, well suited to foster long-continued and abnormal mental strain, directed toward ends which can never be attained, or toward the contemplation of that which was the fictitious image of an overwrought imagination. Could a student, eagerly pursuing his studies, and zealously reaching out for the veiled and hidden things of life, escape such contamination? Again, what were Hamlet's inherited tendencies? Surely no one, with a due knowledge of human nature, can assert that they were unblemished. Were there not particularly well marked mental characteristics of unwholesome kind in the lives of his mother and uncle? Is it assuming too much to suppose that in the death of the King of Denmark by his own brother, there is foreshadowed over the path of young Hamlet, an all-powerful force which he could not *will* to put away from him, and which attained its consummation in the death of the uncle at the hands of the nephew, or that the mother's want of moral stability may not have been transmitted in embryonic life, leaving its brand upon the mental condition of her offspring? After leaving his university at Wittenberg, at the age of thirty, where he had imbibed much of that habit of thought, no doubt, so current at that time, he lost his father. This was the first real blow of his life. A severe one to so affectionate a son; one sufficient to engender unhappy thought in a mind already weakened by inheritance and by surroundings. It weighed upon him constantly; an onus far too heavy for him to carry alone. It became an absorbing, dominant idea, resulting in a fondness for seclusion and for self-conscious, persistent contemplation. It was the first visible commencement in the work of mental disintegration. Then he is informed by the *ghost*, of the manner in which his father had died. This was the only stimulus needed to create that disruption of the ideational centres in respect to their anastomoses, for which the way had already been paved, and which resulted in that melancholic condition which ceased only with death. Is it not easy of comprehension, how an overwrought mind, congenitally unreliable, could be turned aside from a normal condition by a series of such life-long shocks? Notice, too, the manner in which such information is given! The ghost, first seen by Horatio and others, then by Hamlet, what was it but an ideal creation—a hallucination arising out of the overstrained cell in which had festered the dominant idea of the recently buried King; the residual force

of the impression which had been formed during the life of the King, and which, acted on powerfully by the emotions, thus spent itself externally? See how the hallucination reappears when the necessary stimulus is applied. (Act III, Scenes III and IV.) The religious sentiment which withheld the suicidal desire of Hamlet, as well as the existence of the idea itself, are strong points in the chain of evidence, on which is based the assertion of his insanity, and of that division of it known as melancholia. In many cases of this disease, the religious fervor is the first manifestation of its outbreak, while in others there is often suicidal impulse. His first meeting with Ophelia is characterized by a great want of logical coherence and by bitter cynicism. He confesses to having nocturnal hallucinations (Act II, Scene III), and laments his own changed and saddened condition (Act II, Scene III). The celebrated soliloquy (Act III, Scene I,) is the morbidly conscious introspection of the Ego—the unhealthy tension of an all-dominant thought of which he cannot rid himself. The nature of his father's death is constantly before him; to it all else is referred. His insanity becomes manifestly evident to friends and relations. (Act I, Scene V. "He waxes desperate with imagination." Act II, Scenes I and III, Act III, Scene IV, *et al.*) He mistakes Polonius for another, and addresses him in a most erratic manner; and all his conversation is the emanation of the unhealthy, tyrannical and self-conscious idea of which he is possessed. What boots it that his fencing was the best in Denmark? One of the most accomplished chess-players that we have ever met, was a chronic case of insanity. He dies—and how? Poisoned. The faint reflection of an abnormal growth, which was mirrored in his earlier life, had grown to such dimensions as to assume the controlling power.

Thus passes away one, a victim, by inheritance and association, to a morbid psychological condition. Who will cast the stone at one thus dying, for the deeds he worked in the flesh, impelled by a nervous condition implanted in him which he could not conquer? Who, in instances of such a nature, can maintain that will is an innate, constant quantity, dependent upon nothing?

ARTICLE II.—*Case of Wound of the Liver.* By G. W. STEWART, M.D., Muscatine, Iowa.

Anthony B., a lad aged 17, while standing beside a plow team, with the reins about his neck, had his team attempt to run off, and before he could stop them he was thrown on his face in front of the plow, the point of which, engaging him in the region of the small of the back, and dragging him for some distance, inflicted the following described wound :

A semicircular incision in the left hypochondriac region, beginning at a point over the fourth lumbar vertebra, passing first forward and upward, thence backward to a point opposite to and about one and a half inches from the first lumbar vertebra, measuring at the surface, eleven inches; penetrating the integument, passing through aponeurosis of transversalis muscle, latissimus-dorsi, sacro-lumbalis, longissimus-dorsi, serratus-posticus-inferior, and quadratus-lumborum muscles, engaging the twelfth rib and denuding it of its periosteum in its anterior or outer third; passing through the peritoneum and entering the liver at the left lateral ligament, passing inward, forward and upward, in a direction toward but stopping just short of the intersection of the longitudinal with the transverse fossa, within which, and only a few lines beyond the terminus of the incision, could be distinctly felt the hepatic artery. Nearly or quite all of that portion of the left lobe of the liver anterior to the incision in its substance as described, we found protruding through the wound.

We saw the case about two hours subsequent to the occurrence of the accident, and in addition to the particulars already given, found our patient and his wound in the following condition :—Patient nearly comatose from loss of blood; hemorrhage, however, being from small vessels only, had ceased. The integument bordering the wound, was very much retracted, as were also the muscles through which it (the plow) passed, except the latissimus-dorsi at its inferior border, where, from the direction of the incision, the muscular fibres were simply separated—thus presenting a wide and gaping wound.

Upon passing our hand into the abdominal cavity, we found present a large amount of blood, which we removed with a sponge, and continued our search for more extended injuries than those

already described; examined the stomach, which, being empty, and in a partial state of collapse, had escaped injury; as had also the intestines, diaphragm and other organs. The abdominal aorta could be distinctly felt in the floor of the wound, but uninjured.

TREATMENT.—Seizing that portion of the liver protruding from the wound, we replaced it as nearly as possible in its normal position; but upon removing our hand it came immediately out again, seeming to require considerable pressure to maintain it in place; we returned it a second time, and employed an assistant to retain it in position until we could close up the wound, and apply over it a compress to hold it securely in position.

The periosteum of the twelfth rib being only split, we gave it but little attention, thinking that it would take care of itself; and hemorrhage having, as we said, ceased, we proceeded to close up the wound; in this we experienced some difficulty in consequence of the extensive laceration of tissues, but finally succeeded, and finished the dressing by placing over that portion of the liver which had been displaced, a large compress, and over that and around the body several times, a wide roller bandage.

We then directed that cold water be applied to the wound every fifteen minutes, which we continued for ten days, making no changes during that period, other than removing, after the lapse of twenty-four hours, the compress, the pressure of which we feared might induce inflammation, and on the third day beginning the use of carbolic acid, a weak solution of which we applied once every hour.

Fearing peritonitis, and expecting it to manifest itself within two or three days, we were very sparing of diet, allowing our patient for some days only articles of the blandest character. Administered on the second day, that he might obtain sleep, an opiate, with the direction that in case of the occurrence of pain in the wound or its vicinity, there be given every hour or two a powder containing a grain of pulverized opium.

On the sixth day the wound began to discharge pus quite freely, and mixed with it was a greenish substance that we took to be bile, the latter of which was kept up for a period of two weeks.

Our patient gained strength from the first, pulse becoming from day to day more firm; the wound, which we dressed daily, looked

healthy, and, what is remarkable, there *never appeared at any period the first indication of peritonitis.*

On the twelfth day danger of inflammation being passed, or less imminent, we began to apply less frequently our cold water, applying it and the carbolic acid every hour, and also to feed our patient more liberally.

At this time the flaps sloughed off, and exposed to view the liver, and also the twelfth rib, the former of which we discovered to be protruding somewhat through the wound, a portion equal in measurement to a two inch cube being external to the quadratus-lumborum muscle; we endeavored to reduce it as at first, but discovered obstacles in the way; adhesions had formed between the walls of the abdomen and both the superior and inferior borders of the left lobe, which rendered that lobe immovable.

It being impossible for the wound to heal in this condition, we resorted to the use of caustics and the knife, (using the caustic potash), for the purpose of getting rid of this protruding portion of the liver, applying the caustic daily, and afterward paring off with the knife cauterized material, until the prominence had disappeared; having in readiness the actual cautery to use in case of troublesome hemorrhage, should we go too deep with the knife, but no hemorrhage sufficient to occasion alarm occurred.

We next examined our rib denuded of periosteum, and discovered that it was not taking care of itself so nicely as we anticipated it would, and after watching it a few days, decided that amputation would be necessary, as it was becoming still more denuded, and besides was standing out more prominently than it should, and irritating the wound, preventing it from healing kindly; therefore with bone forceps we removed about one-half of it. This gotten rid of, the wound improved in appearance; the two fragments of liver united very perfectly as we could discover, being able to see the line of union in a part of its course; the cauterized surface healed speedily, and granulations sprang up rapidly in the muscular tissue, continuing until the divided muscles were reunited and integument formed over the entire surface.

The wound was inflicted May 7, 1873, and can be said to have terminated in complete recovery in about seventy days time—a result to us unexpected. We have searched for and examined histories of cases reported of a similar nature, and although there

may have been recoveries in cases of a like character and as severe, we have not yet found them. Recoveries are reported, but none whose histories we have seen in which the injuries were so extensive.

ARTICLE III.—*Concerning Amalgam Dental Plugs.* By W. HENRY KING, M.D., Mount Sterling, Ill.

Having just read, in the July number of the CHICAGO MEDICAL JOURNAL, an article on "Poisoning from corrosive sublimate generated in the mouth from amalgam plugs in the teeth," by J. Payne, D.D.S., of Dwight, Ill., I feel so "strangely queer," I scarcely know what *manner* of reply to attempt—and I would make none, were Dr. Payne's the first hollow notes set to the same inharmonious tune. I hardly know how or where "to take him," or what to do with him after the taking. Emotions crowd so thick and fast, I know not what to do. "You'd scarce expect one of my age"—no, that won't do. Well, "Fools rush in where angels dare not tread"—no, nor that either.

"O, were you ne'er a schoolboy,
And did you never feel
That swelling of the heart
You ne'er shall feel again?"

And now I fancy "commencement day," "pigeon-tailed" coats, ribbons—and parchment paper done up in tin canisters; and backward yet to primer days, and the rudiments of chemistry and other *trifles*, memory wings her course. But, hold! My pegasus is about getting entirely away with me. I was about to remark, I am a very modest man, and do not like, as some people do, to parade myself unnecessarily before the public. I am an humble individual, and no "eminent gentleman of the medical profession" ever condescended to pay any particular attention to me, and so my little effort must "go on its own hook." There is, however, nobody in this locality much alarmed about "amalgam plugs," but lest there be an epidemic of fright in the vicinity of Dwight, we propose to take down that scare-crow, dissect it, and ascertain, if possible, whether the altitude it reached in its dizzy flight was due to its light frame-work, or to excessive muscular development.

at the expense of intellectual training, and as we pass along, *laugh* where we must, and be earnest where there's room—always adapting, in our hunt, our ammunition to the target raised.

And, first of all, years of *experience* warn me not to advocate the use of amalgam plugs, *only in exceptional cases*. They are to be condemned for general use, but on altogether different grounds from the ensuing chemical combinations claimed by Dr. Payne.

Dr. Payne says, "every medical man, of any considerable practice, has undoubtedly had numerous cases of it," *i. e.*, "poisoning from corrosive sublimate generated in the mouth from amalgam plugs in the teeth, *but never knew what it was*." No doubt! No doubt wisdom and knowledge are on the increase, and revolve around Dwight as the great centre or fountain of all scientific light! No doubt the general ignorance of medical gentlemen, during the past fifty years of "amalgam plugs," has been so intense that they left this great discovery of "plug" poisoning to Dr. Payne, while they were busy treating patients suffering from "so numerous and varied symptoms" for all the troubles that gentleman has catalogued!

Again, he says: "The patient gradually wastes away as if going into a decline," [how's that! has Barnum got one?] "*and no medicine will afford any relief*." No wonder! Sic. Send for McGinnis. Now it is a pity Dr. Payne "had not time to delineate *the manner* in which corrosive sublimate is formed in the mouth," [and to give us the symbol and atomic weight of the new *element*, "any saline substance, such as food,"] "further than to say that the quicksilver in the plugs is driven off by the heat of the mouth in minute particles, and combining with the chlorine in the fluids of the mouth, *or any saline substance, such as our food*, passes into the stomach, and produces slow poisoning."

Take time, Dr. Payne, and describe this process scientifically, and rival Jenner by your fame!

Now what are the facts in the case? Let us briefly state them.

1. The symptoms Dr. Payne describes, in the main, do not appertain to the mercurial diathesis.
2. If the state of health described were induced by mercury, every respectable practitioner knows remedies that will relieve it, if Dr. Payne don't.
3. "Amalgam plugs in the teeth" do not disturb or derange

the health of *any one* in the slightest degree on account of the mercury they contain, directly or indirectly, and no one dare attempt to sustain such a proposition *but a homœopathist*, and even he would blush at the result.

Let us use figures—not bombast—and approximate the truth. Yesterday, I removed four fillings from grinding surfaces after they were worn in different mouths for seven years. This number of fillings (four) would be a very large average for one mouth to contain. The aggregate weight at the time of insertion was thirty-six grains, viz.: silver and tin, twenty-two grains; mercury, fourteen grains. The weight seven years after: silver and tin, twenty-one grains; mercury, twelve. That is, four plugs in seven years, or 2,556 days, lose two grains of mercury, or one grain in $1,278 = \frac{1}{1278}$ grain of mercury per day. Now, if, after the plug has once become hard, mercury escapes into the mouth, it must do so through the agency of heat, and as the mouth has a *constant* temperature of 98.4° , the escape of mercury must be *constant*. How, then, since mercury, *i. e.*, bichloride of mercury, is *not* cumulative, will Dr. Payne explain these *sudden* "poisonings and prostrations"?

Mercury, as mercury, is inert. Chlorine is found in the saliva, only in combination with potassium and sodium, and only acts on mercury when in excess. Now, does the chlorine give up the powerful bases, potassium and sodium, for mercury? We deny it. But suppose it did, how much bichloride of mercury would $\frac{1}{1278}$ of a grain of mercury form daily? Let us see. Atomic weight of Hg.=100 of Cl.=35.5. Then $271:200::1$: amount of Hg. in one grain Hg. Cl.; or one grain Hg. Cl.=.73 parts mercury, plus .27 chlorine; or one grain of mercury will make 1.37 grains corrosive sublimate, and .1278 grain of mercury would make .932 of a grain of corrosive sublimate in the mouth daily. Now, allow $\frac{1}{4}$ of a grain of corrosive sublimate as the ordinary dose, it would only take 186 days to get a dose in the manner described by Dr. Payne. Now, if all this will not answer this much mooted question, look at it another way. If you expel *all* the mercury from a plug by a slow low temperature, the remaining metals will be but a fine powder; so as long as a filling remains solid *it contains mercury*. I saw an amalgam plug to-day that still *fills* up the cavity in which it was placed *thirty years ago*, and it remains dense and hard. This filling, according to the proportional amount of mercury required

at the time of insertion, could not have contained more than four grains of mercury and still holds some, and just such fillings have been worn for sixty years, without harm, and will be worn again, long after friend Payne has gone "where the woodbine twineth."

In conclusion, allow me to recommend the State Medical Society to send a committee to Dwight in search of candidates for Jacksonville, and to petition the next General Assembly for a law to hang *every man* who knows of 12,000 people daily destroying more lives than all the cholera, etc., in the land, *and will not take "time to delineate the manner"* in which the poison is formed, though he knows it to a certainty. "Let us have peace." What next?

ARTICLE IV. — *Puerperal Fever. Treatment by Intra-Uterine Disinfection.* By J. E. O'BRIEN, M.D., Scranton, Pa.

Having had several cases of puerperal fever during the past year, I have given them much study, and made an advance in treatment which I do not find on record; if the same should have escaped my limited researches, however, I beg to be directed to it.

In all the cases of puerperal fever, which I have seen, I have recognized the presence of a septic poison in the womb, the detritus of placenta, membranes, or clots; or pus, a result of inflammation caused by violence at the hands of the midwife. The axiom which I would give the profession, (if I have not been anticipated), is—

To neutralize the septic matter by *intra-uterine* injections of carbolic acid.

A very good illustration of the treatment usually employed, may be found in the JOURNAL, Vol. XXVI, p. 110, but nowhere have I found a suggestion of anything *beyond* opiates, eliminants, and disinfectant vaginal injections. The latter as recommended in our text books form a curious anomaly in practice, for it is not the vagina which absorbs the organic poison, but the open veins of the womb, or its absorbents now actively engaged in the process of involution.

The most serious objection to intra-uterine injections in gynæ-

cological practice, is the alarming colic which they produce unless their exit be provided for by previous dilatation with sponge tents; the syringe which has been constructed to return injected fluids is practically a failure. This objection, however, does not apply to the post-partem uterus, as it has been dilated, and is tolerant of fluids, and used to expelling them.

In a recent case of commencing puerperal fever, I injected into the womb four ounces of warm water, which washed out ropy, offensive pus; I then injected two ounces of warm water, containing half a dram of carbolic acid (crystals). The patient had a slight colic after the water injection, but none after the carbolic acid, and in a few minutes she said that the soreness of the womb, which had been very great, was easier; she then took carthartics, Dover's powder, had hot water, in flannel, to the abdomen, etc. The lochia, previously suppressed, occurred again immediately after the syringing, and continued profusely.

Six hours later the fever was less, the soreness of the abdomen much better, tongue cleaner, lochia continuing, and further injection, which I had determined upon, apparently not required. The next day she had stitches in the right and left hypochondrii, and one or two spells of faintness, but she made a good recovery. I would not attempt to prove anything by a single case, but I believe the proposition is self-evident that if we think there is septic matter in the womb we ought to reach it directly with disinfectants.

A syringe with a long tube, curved like a uterine sound, is necessary. (They are made with a return gutter, which, as I have said, is generally useless.)

ARTICLE V.—*April Fooled.* By L. B. BROWN, M.D., Sheldon, Ill.

Was called, April 1st, 1873, to visit Mrs. J. W. Smith, a farmer's wife, age 36 years, weight about 150 pounds, of stout build,—(short and thick is a fair expression)—probably of German extraction.

I found the woman in bed, perfectly comfortable, except from fear that all would not be well with her, having been delivered of a child about eight hours before my arrival by the assistance of a

midwife—who, by the by, is a very intelligent and successful one—I must say a *rare* specimen of that class as found in the country.

On examination of the abdomen, which particularly attracted my attention, I found it *enormously* distended generally; no pain on pressure, no motion, described by the woman; nor could I detect anything satisfactory. Made examination per vaginam; passed my finger into the os, without difficulty; detected nothing but the cord of the child that had been delivered—made slight tension upon it, with my other hand upon the abdomen—cord easily gave way, and *I was lost*. Does any one suppose the midwife in attendance had been *pulling* at that cord? I suspected and conjectured “muchly”; one thing I thought I knew beyond doubt, to wit, that there must be a retained placenta. Remembering that ergot had been used many times with different results, and having some of Thayer’s Fluid Extract, I commenced with twenty drops, repeated every fifteen minutes until four or five doses were given. The woman complained of being dizzy and sick at the stomach; pulse very feeble, surface cold and clammy; vomited; resorted to hot tea and whisky. In about half an hour reaction was sufficiently established, and I was fully satisfied with the pernicious effects of ergot, in that case in particular.

During all this time, two hours or more, there were no uterine pains, no motion, no nothing—but one child, and anxiety.

Determined to introduce my hand into the uterus, I immediately made the effort, and succeeded without difficulty. Found about a hand’s length from the os, the back of a child; the vertebrae being my guide, I easily made fast to the inguinal region with my forefinger, and by the aid of a broad towel placed over the abdomen, with an assistant at each end pulling downwards, I delivered the woman of a living child, without any perceptible uterine contractions.

Size of the abdomen not materially diminished; patient comfortable; continued pressure with the towel and introduced my hand again; found sack presenting of large size—was not fully satisfied as to the character and contents; I ruptured the sack, and a very large amount of water escaped, probably two quarts; the abdomen somewhat diminished in size, and to my surprise, the head of another child presented, which I clasped in my hand, and by the

aid of the towel as before, delivered the woman of the third living child, without uterine pains.

I now proceeded to prospect for the placenta by introducing my hand, (which was a very easy matter), and, to my utter astonishment and consternation, the head of another child, if possible, presented, which I delivered in the same manner as before, instructing the assistants to pull harder on the towel. Four living children.

During the birth of the fourth child there were slight labor pains.

Now for the afterbirth, with fear but no trembling.

I took the three remaining cords, twisted together slightly, in one hand, introducing the other hand into the uterus and grasped the mass, then gradually but carefully made tension upon the cords, at the same time using other means to excite uterine contractions, which were more forcible in the delivery of the placenta than with the last three children.

The woman was very much exhausted, notwithstanding she had no severe labor pains (owing, no doubt, to the extreme attenuation of the walls of the uterus). I was fearful syncope might overtake her, from the removal of the compression to which the abdominal veins had been subjected. A broad bandage was immediately fixed around the abdomen tightly, and mild stimulants administered. No trouble in maintaining a contracted state of the uterus.

The children: all girls, perfectly formed, and of fair size, very similar in shape, rather long and slender; round heads, well ossified; aggregate weight eighteen pounds—two weighing five pounds each, and two weighing four pounds each.

The placenta was quadrilateral in form, twelve or fourteen inches square, and of the usual thickness. The cords were regularly attached, about seven inches apart. I did not weigh the placenta,—probable weight six or seven pounds.

Taking the aggregate, children, placenta, and liquor amnii, which could not be accurately estimated, though in my opinion not less than three quarts, it will require some stretch of the imagination to comprehend the appearance and condition of the woman before and during labor.

In 129,172 births in the Lying-in Hospital of Dublin, there were 29 cases of triplets and one of quadruple birth.

From British, German and French records, the following is reported: 666,424 cases, 8,006 twins, 87 triplets.

This extremely rare occurrence of quadruple gestation, and the still greater rarity of four living, perfectly formed, fair sized children, is my excuse for reporting the above case.

The children are now (July 17) three and one-half months old, and in a prosperous condition, weighing respectively 11, 10, 10, 9 pounds; total, 40 pounds.

ARTICLE VI.—*On the Unity or Duality of Syphilis.* By JAMES NEVINS HYDE, A.M., M.D., Chicago.

Article II of the April number of the *American Journal of the Medical Sciences*, for 1873, is entitled, "On the Present State of the Question of the Unity or Duality of Syphilis, by Freeman J. Bumstead, M.D., of New York." Its author is an eminent syphilographer and a well-known advocate of the tenets of the dualistic school. His opinions are worthy of careful consideration, and the exceeding interest of his subject and his style have placed the article referred to prominently before the profession. After a recital of certain facts which have been brought into notice by some experimenters in Europe, he observes:

"It would be useless to deny that the results of the recent experiments given above, were unexpected by the dualistic school, and cannot be explained by them in accordance with the views which they have held."

I am venturesome enough to believe that these results can be explained, in great part, according to the views held by the dualistic school—*quorum pars sum*—and, in the attempt, shall premise the following statements of some of their views:

1. Every infecting chancre is necessarily followed by syphilis in one who is the subject of it and in another to whom it is transmitted, when no treatment has been pursued.

2. Syphilis has a definite career. It commences with an in-

fecting chancre, but does not recur to an infecting chancre while its energies are unexhausted and not controlled by remedies.

3. Infection having once occurred, all lesions of cutaneous and mucous surfaces become secondary lesions, which present symptoms corresponding to the stage of the disease. These lesions may be transformed chancres, wounds, gonorrhœal inflammation, flea-bites, etc.

4. Secondary lesions are in various degrees contagious. Those are most highly contagious in which occur secretion, elaboration of pus cells, and discharge.

5. An inoculation of syphilitic or other virus, to be successful, must be followed by the characteristic effects of that virus. Other produced effects do not prove that an inoculation has occurred, since they may proceed from causes connected with the constitution of the individual inoculated. Thus a vaccination of a scrofulous subject may produce a scrofulous sore in no way allied to the vesicles of vaccinia.

These propositions stated, I recur to the body of the article referred to. After a short sketch of the origin and progress of the doctrines of the dualists, Dr. Bumstead formulates them in ten paragraphs, which express fully, with one exception to be again considered, the prevailing views of the school. He then describes the "mixed chancre," and proceeds to the subject of Prof. Boeck's visit to England and America. He says:

"In England, Prof. Boeck succeeded in some seven cases, and in my wards at Blackwell's Island, after a number of failures, he met with success in one instance," in inoculating the secretions of true chancres and syphilitic condylomata, with a view to produce syphilization. In other words, Prof. Boeck *occasionally* succeeded in producing secondary lesions upon the skin of syphilitic patients by irritations with a lancet.

"His method was to inoculate every day, and in some instances twice a day, and he stated that success would be finally attained, though possibly not until after the lapse of several weeks."

This is just what the history of consecutive symptoms would teach us to expect. A period of some weeks generally elapses before the system is capable of expressing its infected condition by the exhibition of secondary lesions. This is that "period of incubation" which Dr. Bumstead himself teaches when he says, in

his work on Venereal Diseases,* (p. 441), "the earliest symptoms of general syphilis . . . have been preceded by a chancre probably between three and certainly within six months." Nor would the coexistence of a primary sore and the results of these so-called inoculations, negative this statement of the essential nature of the latter, since it is well known that the two conditions are frequently observed to be contemporaneous.

An acceptance of the 5th of the propositions stated at the outset of these remarks, involves a complete disbelief in the production of any real inoculation in the cases operated upon by Prof. Boeck, and a different explanation of the *modus operandi* of his cures by syphilization. The skin is tattooed† with a lancet—no matter what manner of virus is used—until irritated to such an extent as to exhibit the lesions of secondary syphilis. The first explosion of the constitutional disease is thus made to anticipate somewhat the date of its ordinary appearance, and the effect is to delay, or prevent, a further explosion. It is in a similar way that the period of latency of inoculated variola is shortened and its subsequent career modified.

Dr. Bumstead continues by referring to Mr. Henry Lee, of London, who, in 1856, showed that—

"A chancre would become readily auto-inoculable if it was irritated in such a manner as to render its secretion decidedly purulent. This fact was confirmed by Bidentkop, Kobner, and Pick, in Germany, who not only applied powdered savine to the surface of chancres in order to irritate them, as Lee had done, but also accomplished the same purpose by passing a seton of horse-hair through the base of the sore. Similar treatment of syphilitic condylomata had the same effect, and rendered their secretion inoculable, though with greater difficulty."

These conditions are readily explained. But in order to do so satisfactorily, it is necessary to agree, first, that contagion is, for all

* The Pathology and Treatment of Venereal Diseases, including the results of recent investigations upon the subject; by Freeman J. Bumstead, M.D. Philadelphia, 1866.

† I use the word advisedly—no other occurs to me equally descriptive of Boeck's procedure. An individual in perfect health could not fail of being profoundly affected by the many hundreds of lancet wounds inflicted in accordance with the Professor's tireless routine.

practical purposes, immediate,* and, 2d, that a chancre is an expression and a result of that contagion; and is as much a constitutional symptom as a syphilitic node.† Such being the case, what is the result of artificial irritation of a chancre by powdered savine, or by a horse-hair seton? I affirm that it is changed, transformed, converted to a syphilitic accident of another grade. It ceases to be a chancre and becomes a syphilide. Mr. Henry Lee elsewhere confesses that he cannot, at all periods of its existence, produce this change in the secretion of the sore.‡ Why? Simply because it is necessary that a certain evolution of the disease should occur before such a transformation can be effected. Observe that syphilitic condylomata exhibited corresponding changes—a fact which clearly indicates the affinities of the two classes of lesions. Now I have endeavored to lay down in the 4th proposition, that the secretion of a pus cell in a secondary lesion is an element of contagion. If all this be granted, can it be said that the auto-inoculation of these secretions produces a true infection, or that the resulting sores are chancres? Is it not rather true that the irritation of the skin of a syphilitic patient, in whom these secondary changes have been induced, provokes the development of additional lesions of the same general character, and from the same constitutional source? It may be admitted, however, that there is, in these instances, an anticipation of the date of the natural explosion of the disease.

Dr. Bumstead concludes from the foregoing experiments that—

1. "Neither the chancre nor any of its secondary manifestations can readily be inoculated with success upon the persons bearing them, nor upon any other persons under the influence of syphilitic infections.
2. "Successful auto-inoculation, however, of these lesions may be attained by irritating them, by the methods just mentioned, so that their secretion is rendered decidedly purulent.
3. "The effect of the successful inoculations is apparently the same as that produced by the inoculation of chancroidal matter. In the course of about forty-eight hours, or without incubation, a

* Cazenave, *Traité des Syphilides*, p. 142, et seq. Paris, 1843.

† Lancereaux, *Sur la Syphilis*, p. 63. Paris, 1866.

‡ *Lancet*, April, 1866.

pustule appears which covers an ulcer with abrupt edges, a soft base, and a tendency to spread; and which will reproduce itself on artificial inoculation through a number of generations."

The first two of these conclusions do not require comment in view of what has preceded. Of the third, I remark, that according to the latest opinions of dermatologists, a pustule is nothing more nor less than a local abscess on a small scale. A pustule, in a subject of syphilis, is a small local abscess, modified by the constitutional dyscrasia. Do we find such modified abscesses in the skin of patients suffering from syphilitic disease? Let Dr. Bumstead himself answer (op. cit. p. 528). "In the superficial variety" (of pustular syphilis—ecthyma, etc.,) "the scab first formed exposes (on removal) a superficial ulceration. In the deep variety, its (the ulcer's) edges are abrupt, and covered with a grayish secretion." And again (p. 527) in describing the pustules of syphilitic impetigo, he says: "Their base is sunken within a prominent border of the same aspect." Squire* describes these same ulcers as being "moderately deep, having . . . clean-cut edges and a grayish floor."

If any one is disposed to doubt whether such secondary lesions could be contemporaneous with some periods of chancreous erosion, I reply that such a doubt cannot fail to be removed by a consideration of the clinical truth of other facts. The division of syphilis into secondary, tertiary and even quaternary periods is entirely artificial and arbitrary, and, as Mauriac† has pointed out, is no more applicable to syphilis, than to any other constitutional disease. This author gives full details of one case, in which, at the very inception of the disease, so-called tertiary complications involved the bones, periosteum, splanchnic viscera and muscles—another of pericranial periostitis at the very outset of syphilis—another of frontal node, occurring only twenty days after chancre, which was *succeeded* by roseola and secondary cutaneous and mucous accidents—and yet another of periostitis, succeeding doubtful primary disease, and *followed* by papulo-squamous syphilide and laryngopathy.

The words "secondary" and "tertiary" are, however, so gener-

* Manual of Diseases of the Skin, by Balmauno Squire, M.D., F.L.S., p. 147. London, 1868.

† Gazette des Hopitaux, 1872. Charles Mauriac, Physician to the Hôpital du Midi, Paris.

ally used and understood, that for convenience merely, they are employed in the course of these remarks in the sense according to which they are commonly accepted.

To return to the remarks of Dr. Bumstead, he continues: ". . . three cases have been reported by Bidentkop as exceptions to this course. In one, an indurated ulcer is said to have been developed after the lapse of two to four weeks; in the other two, papular elevations without induration and becoming only superficially ulcerated, followed after a lapse of four and three weeks respectively; at the same time that pustules appeared from later inoculations, made a few days before, with the same matter and upon the same patients."

These, surely, are the exceptions that prove the rule. No comment is necessary to lead the reader to distinguish clearly, in these results, the influence of a syphilitic infection and its production of secondary lesions.

Now arises the question: What would ensue from an infection of healthy individuals with virus obtained from these sores induced upon the skin of syphilitic subjects—call them secondary lesions, chancres, chancroids, or what you will? If opportunity for such an inoculation were to occur, would you not possess an "experimentum crucis?" To this question the consistent dualist replies: Constitutional syphilis, preceded by infecting chancre, would undoubtedly ensue. Dr. Bumstead, in response, quotes the following cases reported by Bidentkop of Christiania:

"Olive Martinsdalter, seventeen years old, entered the hospital, Oct. 9, 1862, with gonorrhœa of the vagina and urethra. She had recently come from the country, and had never before suffered from any venereal disease. Her health was otherwise perfect. She was treated with alum tampons in the vagina, and a solution of nitrate of silver in the urethra.

"On the 25th of November she inoculated herself on the epigastric region, by means of a needle. The matter was taken from the artificial ulcers of a patient, who was being treated by syphilization, and these ulcers had been produced, many generations back, by the author's inoculation of matter from an infective chancre. She concealed for a week what she had done; but, as the inoculation had succeeded only too well, she was compelled to show it. On examination there was found a round ulcer of the

size of a pea, with sharp edges, sunken floor, and surrounded by a reddish swelling. The secretion of the ulcer was copious, and there was no trace of induration.

"She stated that a pustule had appeared a few days after the inoculation, and had terminated in the ulcer. The latter was treated with a water dressing. It soon increased decidedly in size, and the inflammatory swelling became greater, but without becoming perceptibly indurated. By the end of three weeks it had attained a diameter of rather more than four lines; it was tolerably deep, with callous edges, and its secretion had become scanty and thinner. It was now lightly touched with stick nitrate of silver.

"December 28.—A swollen gland of the size of a walnut, somewhat painful on pressure, appeared in the left axilla, but disappeared again in three weeks.

"January 27, 1863.—The ulcer had decreased to the size of a pin. There was not the slightest infection of the system. In consequence of spontaneous inoculation, a small ulcer now formed by the side of the old one, but soon healed.

"March 5.—The patient was dismissed. The ulcers had healed and left behind them, bluish, somewhat elevated scars, which were not indurated. There was no swelling of the glands, and no symptoms of syphilis.

"The patient was subsequently examined nearly every week by the author, who could not discover the slightest trace of constitutional disease.

"In the summer of 1864, however, she contracted a chancre, which was followed in a few months by roseola and other constitutional symptoms."

The second case, reported by Bidentkop, is thus detailed:

"The patient, a girl free from syphilitic antecedents, had entered the hospital for eczema. She inoculated herself with matter taken, as in the first instance, from patients undergoing treatment by syphilization, who had been successfully inoculated, several generations back, with the secretion of their own chancres. As a result of these inoculations, pustules and ulcers appeared, without incubation, and several of them finally left hardish scars. Some symptoms of a suspicious character afterwards appeared on other parts of the body, but were not regarded as syphilitic by the attending physicians."

Three other cases are alluded to, which were communicated by Dr. Gjør of Christiania.

Dr. Bumstead admits that these five cases are "imperfectly reported and open to criticism." As the details are not fully given, I remark of the first, hypothetically:

1. The patient may have been admitted with a syphilitic gonorrhœa, from which she became infected, produced an ulcerating syphilide by her so-called inoculation of Nov. 25, and had further accidents develop in 1864—the character of the "chancre" then contracted having been misunderstood. By "syphilitic gonorrhœa," I mean a purulent discharge contracted from an individual infected with constitutional syphilis. Such a discharge (see Proposition 3,) partakes of the nature of secondary lesions in a syphilitic subject, and is capable of transmitting the disease. To this source of infection agree Dr. Bumstead, (op. cit. p. 72), Tonner,* Erichsen, Fournier and others. Forty-seven days, at least, elapsed between the date of admission of this patient and the appearance of the epigastric ulcer; and syphilographers agree that but twenty days† may intervene between the date of infection and that of the outbreak of general syphilis.

2. The inoculated region may have exhibited an infecting chancre, and constitutional disease manifested itself as a result in 1864, the character of the sore which appeared in the summer of that year having been misinterpreted. Cazenave is an authority for the statement that the first explosion of the disease after contagion may be delayed for two years,‡ but in this case it is only necessary to suppose a delay of eighteen months. As to the characteristics of the sore produced by the needle, it is noticeable that for one week the patient concealed it from observation. During that period it may have exhibited a pathognomonic induration. This peculiarity of the initial lesion of syphilis often appears on the third day after infection,§ and, to use the phrase of Dr. Bum-

* Practice of Medicine, by Thomas Hawkes Tonner, M.D., F.L.S., p. 294. Philadelphia, 1872. Also, Erichsen's Science and Art of Surgery, p. 524. Philadelphia, 1869.

† Lancereaux, op. cit., p. 64, and many others.

‡ Op. cit.

§ "On Induration in Syphilis," by Victor de Merie, F.R.C.S., Medical Press and Circular, Feb. 16, 1870. Mr. Merie shows in this paper, 1st, that our

stead (op. cit., p. 412), is often "short lived." This would be exceedingly apt to occur in an epigastric chancre, and the rarity of lesions of this character, in such a locality, would render an accurate diagnosis difficult. Of 470 infecting chancres observed at the Hopital du Midi,* one only occurred on the leg and one upon the finger—none on the skin of the body—the field of study therefore in such cases must be limited.

3. On the very showing of Lee, Kobner, and Pick, this epigastric ulcer, situated in a locality extremely favorable for irritation by the clothing, may have been an infecting chancre, whose secretion became copious in consequence of such irritation. The "inflammatory swelling" which subsequently occurred, would point to such a cause. The non-suppurating axillary bubo and the formation of a smaller ulcer in the neighborhood (pustular and encroaching syphilide†) would equally lead to such a conclusion—the roseola of 1864, being, on this hypothesis also, presumed to be a resultant.

Of the second case I remark that the "symptoms of a suspicious character," the "hardish scars," etc., throw so much doubt upon the results of the "inoculation" that any conclusions to be derived from it would prove in a great degree untrustworthy.

Dr. Bumstead continues:

"In 1865, Prof. Pick, taking the matter from pemphigus, acne, scabies and lupus, occurring in persons who had never had syphilis, inoculated it, first, upon the individuals from whom it was taken, without success; but this same matter, inoculated upon syphilitic subjects, gave rise in three instances to pustules not preceded by incubation, and the secretion of which was further inoculated, through many generations. Similar experiments by Reder and Kraus proved successful in one instance."

knowledge as regards the nature of the induration is, as yet, imperfect; 2d, that very striking distinctions exist as to the shape and feel of the induration according to locality; 3d, That mistakes are exceedingly likely to occur in distinguishing syphilitic induration from simple oedema and ordinary infiltration. He also demonstrates the complete absence of induration in the irritatory symptoms of syphilis. Cases are quoted to establish this fact, and exceptional instances are noted where no evident irritatory symptom could be made out.

* Cited by A. Martin, These de Paris, p. 62.

† American Journal of Syphilis and Dermatology, Jan., 1873, p. 58.

Could any stronger proof of the position which I have taken in regard to the secondary character of these induced lesions, be advanced? The very innocuousness of this matter from acne and pemphigus, when introduced into healthy skins, demonstrates that its introduction into the skin of a syphilitic subject, was succeeded by an effect attributable *only* to the syphilitic disease, and proves that the wound of the lancet excited the local disorder. This provocation of secondary lesions is, as the experimenters show, a difficult and rare feat. In four instances only are we informed of its successful accomplishment.

Now if these lesions be not secondary syphilides, and not results of inoculations of a virus, what are they? Will any one contend that they are *non-inoculated* and non-syphilitic chancroids?

Dr. B. continues by referring to the experiments of Mr. Morgan, of Dublin, who has, within a few years, produced "pustules capable of further inoculation through a number of generations, by inoculating syphilitic women with their vaginal secretion."

This also is a result entirely in accordance with facts stated by many authors, to which allusion has been already made. The secretion of a pus cell, either in the vagina or nares of a syphilitic subject, partakes of the character of a contagious secondary lesion, and will inoculate others with the disease, as well as set up an irritation capable of evoking other syphilides in the same subject.

Dr. Bumstead concludes by stating the effect produced on various authorities by the results of the experiments given above. Sigmund and Zeissl remain fixed in the belief of the dualistic school. Reder has "from a scientific standpoint" abandoned its tenets. Auspitz, Hebra, and Michaelis, are in favor of unity. Prof. Pick, of Prague, is non-committal; while Geigel and the great Ricord in France, are enthusiastic advocates of the doctrines of dualism.

Dr. Bumstead's seventh proposition—of the ten in which those doctrines are formulated—is, in part, open to criticism. It reads as follows:

"7. The nearest ganglion in anatomical connection with a chancre almost invariably, and the intervening lymphatics not unfrequently, become indurated at the same time as the chancre itself. If suppuration takes place either in the ganglia or lymphatics, it is due to accidental causes, giving rise to com-

mon inflammation ; and the pus is simple pus, destitute of specific quality."

If by this it is meant that the discharge from such a bubo will not inoculate the lips of the opening through which it escapes, and thus give rise to a specific ulcer, as is the case with a bubo originating from a non-infecting sore (chancroid), there can be no question of its accuracy. But if it is meant to teach that there can be any "common inflammation" or "simple pus" in one who is the subject of syphilis, *so far as regards possibility of infecting another*, there is room for dissent. The constitutional dyscrasia in such cases is, without doubt, engrafted upon every morbid process and every morbid product of the system.* It is entirely true, as Dr. Bumstead remarks in conclusion, that "a new field for investigation and experiment has been opened, which no one has as yet fully explored, and no one can pretend to understand." And I am convinced that this investigation can be most satisfactorily conducted, with a complete establishment of the fourth of the propositions stated at the outset of these remarks, viz.: that where there is elaboration of pus cells in a syphilitic subject, there is a possibility of transmitting the disease.

It is not without great diffidence, and a sense of his own unfitness for such a task, that the writer of these lines has attempted to establish the views of an accomplished author, in the face of the facts collected by himself. For the sake of convenience and distinction of statement merely, has the first person been largely employed. It was from the lips of the best syphilographer of America that he learned, some twelve years ago, his first lessons in dualism. And he cannot refrain from comment upon an article which appeared in the *Chicago Medical Examiner* for October, 1871, entitled "The Unity or Duality of the Syphilitic Virus."

After a consideration of several of the results obtained by the German and French experimenters, the author of the article in the *Examiner* concludes with a pointed reference to Ricord, Bassereau and Bumstead. He says:

"The fluctuations of this remarkable controversy are adapted to arouse indignation in a thinking mind. What is the use of science in the hands of men who contrive, not how to bring out

* Aitken's Science and Practice of Medicine ; Vol. I, p. 694. Philadelphia, 1868.

solid and permanent truth, but only some startling conclusions upon which to base a reputation? Who are these pseudo-great men to whom we have given the highest honors of science for forty years, for telling us, first, that the syphilitic virus is single, then that it is undoubtedly double, then again that it is single, and, finally, that they don't know which it is! Would any block-head have done worse by simple guess-work? There is only one remedy for this foolery, and that is, to leave off honoring men for half-made discoveries, and to scourge with the lash of criticism and contempt, all efforts to place crude and ill-sustained opinions in the rank of ascertained truths."

Without attempting to criticise the rhetoric or spirit of this contemptuous "lash," it may be profitable to remind him that "solid and permanent truth" is most often attained by a process of "half-made discoveries." Rarely is it allotted to one man to subtract all the golden ore from its hidden veins. Piece by piece, with much alloy, through arduous labor and by the aid of fellow-workmen, is it brought to the crucible. Columbus never saw the main-land of this continent, but it is inscribed upon his tombstone* that he "gave a new world to Castile." Bichat, Hunter, Paget, and Virchow, have been justly honored, though they gave many half-truths to the world, and often much less than that. And were the doctrines of dualism to be to-morrow irrefutably disproved, they who have toiled and studied and written to set them forth, would be chiefly honored for their contribution to the final result.

No. 117 SOUTH CLARK ST.

AN UNHEALTHY BUSINESS.—No business is so fatal to life as that of selling liquor, because those who sell usually drink. A recent report in England on the influence of occupation on health, proves that even those who work in mines in the bowels of the earth live longer than liquor sellers. The tables in the report show that while the average number of deaths among 1,000 miners is 18, among 1,000 liquor dealers it is 25, and that the average life of liquor sellers is more than ten years less than that of other men.

* "—a Castilla y a Leon
nuevo mundo dio Colon—"

Selections.

A Case of Traumatic Brachial Neuralgia Treated by Excision of the Cords which go to form the Brachial Plexus. By HENRY B. SANDS, M.D., Surgeon to Bellevue Hospital, and E. C. SEGUIN, M.D., Physician to the Presbyterian Hospital.

We offer the following case, believing it to be unique in its causation, and in the means used to relieve the terrible suffering caused by the nerve lesion.

History of the Case.—E. McA., an American, aged 18 years, was wounded in the following manner, at Worcester, Mass. On the fourth of July, 1871, he was aiding in firing a salute with a brass cannon. While he was ramming home the charge, standing on the right of the piece, his left hand by his side, and his right hand driving in the rammer, the piece was prematurely discharged. He was thrown a considerable distance ("20 feet"?), and lost consciousness. In five minutes consciousness returned, and an examination showed no injury of any part excepting the right upper extremity, which exhibited a badly lacerated wound of the thumb and hand, a fracture of both bones of the forearm in the lower part of its middle third, and an extensive burn of the same part. Patient states in the most positive manner that his hand was absolutely without sensation at the time he regained consciousness, and remained "dead." Very shortly after the accident, the metacarpal bone of the thumb was disarticulated, and as careful a dressing made of the fractured forearm as was allowed by the extensive burn. He was under the care of Dr. Albert Wood.

All apparently went on well until about three weeks after the accident, at which time pain showed itself in the range of distribution of the ulnar nerve of the injured side. In a few days this pain became constant, and assumed an extreme character, extending to the thenar eminence, and affecting the minimus and annulus fingers severely, the medius moderately: the pain was a cutting and tearing one. From that period neuralgia has been the predominant symptom, depriving the patient of rest, exhausting him physically, and quite breaking down his moral tone. Meanwhile, the wound resulting from the amputation of the thumb had partially healed, but no union had taken place between the fractured bones.

On the eleventh of August the patient was brought to this city, and was attended by Dr. Salvatore Caro. Under this gentleman's care, narcotics, morphine, chloral, chloroform, were judiciously administered, but the controlling effect of these drugs was very fugitive; the moment that the patient awoke from artificially produced

sleep, the neuralgic pain in the hand and fingers reappeared with extreme violence, and caused the sufferer to groan and shriek. The wound caused by amputating the thumb rapidly healed, and the burn likewise cicatrized in greater part. From day to day the pain seemed, however, to grow worse, and the patient's strength and moral tone to fail. He became so irritable that the dressing of the wounds was a most difficult matter, inasmuch as he thought movement of the shoulder and arm increased his suffering.

On the 14th of August, Dr. Caro called Dr. Sands in consultation, and the other author of this report was allowed by the courtesy of these gentlemen to take part in the examination. The following memorandum is a copy of notes taken shortly after the consultation by Dr. Seguin.

The patient is a well-built, muscular man, much emaciated. During the examination he exhibits a truly extraordinarily nervous state, which his friends declare is quite unlike his usual manner. The face exhibits the traces of severe suffering and broken sleep. The right upper extremity is the seat of slight oedema. In the lower middle third of the forearm is a false joint, caused by the non-union of the fractured ulna and radius, the ends of which are considerably displaced. Nothing remains of the burn except a granulating surface, perhaps one inch in diameter, on the inner surface of the lower third of the forearm. The amputation at the thumb-joint has left a small healthy oval ulcer. The entire upper extremity is motionless upon a pillow, the elbow and forearm being loosely supported by a simple felt gutter splint. Patient fears that the examination will increase the intense shooting, burning, and tearing pain which affects the fingers and the hand; he dreads contact, active and passive motion. Consequently we are surprised to discover that (*a*) patient can make no voluntary motion of any part of the right upper extremity, except slightly raising the scapula, and that (*b*) sensibility is completely abolished as high as the upper part of the arm. The limit between absolute anæsthesia and sensibility is an irregular line which externally rises as high as the point of insertion of the deltoid muscle, and extends several inches lower upon the inner and posterior aspect of the arm. Above this irregular line of demarcation, about the scapular and clavicular regions, there exists great hyperalgesia, the patient complaining that the pain in the hand is excited by slight contact, and shouting and swearing from extreme agony when the scapula is handled. It is remarkable that bringing the scapula forward and holding it in this position gives the sufferer much relief. As regards the degree of anæsthesia existing below the above specified line,—*i. e.*, in lower part of arm, entire forearm and hand,—it may be stated that simple contact is not perceived; that the fracture may be freely handled without causing pain; that pushing pins deeply into the tissues is unnoticed; and that heated objects are not perceived.

From the patient's assertions about the effects of motion and contact upon the neuralgic pain, the belief had grown up that there might exist a relation between the symptoms of nerve injury and the fracture of the bones of the forearm; in other words, it was feared that the great nerves which pass among the muscles of the forearm to supply the hand were caught between the fractured bones, or were being compressed or irritated by fragments of bone. The question to be decided by the consultants, therefore, was, the desirability of cutting down upon the fracture and determining whether any such pathological state as that above stated really existed. Of course, the discovery of the extensive paralysis and anæsthesia above referred to changed the aspect of the case materially. It was evident that we had to deal with an injury much higher up than the fracture, one producing a complete interruption of centripetal and centrifugal conduction in all the nerve-trunks which supply the upper limb. Of course, this being admitted as probable by all present, the conclusion was arrived at that no operation on the distal side of the injury could relieve the patient of his neuralgia; said neuralgia being a pain referred to the distribution of certain nerves, in accordance with the well-known physiological law of reference of sensations,—a pain whose cause was a nerve-lesion situated in the axillary space, if not higher.

Another consultation (Drs. Caro, Sands, Stephen Rogers, and E. C. Seguin) was held on August 15th, when the question of relieving the suffering of the patient was brought up. Dr. Rogers advised, with the view of interrupting the neuralgia, complete chloroform anæsthesia for a period of twelve hours. Dr. Seguin, considering the neuralgia as dependent upon the irritation of central ends of the injured (ruptured) nerves by newly formed (by repair) connective tissue, recommended counter-irritation to be applied near the supposed seat of nerve lesion, *i. e.*, above and below the clavicle.

On the 28th of August, Drs. F. H. Hamilton and Seguin were asked by Dr. Caro to see the patient. We find him in much the same state, suffering more, if possible; the pain being mainly of a burning character. The patient's excitement and irritability are such that details upon the state of his sensations are very difficult to obtain. The wound in the thumb has completely healed; but the fracture exhibits no signs of union. A careful examination of the state of sensibility shows that anæsthesia is complete in hand, forearm and lower arm as high as limit indicated above. A new test is employed, *viz.*, wire points connected with the maximum secondary current of a strong induction apparatus. Patient's general condition has somewhat improved. The existence of a severe nerve-lesion high in the axillary region (a rupture probably of all the nerves constituting the brachial plexus) being unani-

mously regarded as certain, and the chances of reunion of the torn nerve fibre and the regeneration of the peripheral parts of the nerves being looked upon as *nil*, it was proposed by Dr. Hamilton that the arm should be amputated near the limit of anæsthesia. It was thought, (1st), that through the operation, some temporary alleviation of the neuralgia might be obtained, and, (2d), that the patient would be rid of a member that would ever remain palsied and useless, and the care of which would interfere with the taking of exercise and with other means of regaining tone and strength. The proposal was concurred in; and, on the 29th, Dr. Hamilton dexterously removed the arm at about its middle, by the circular method. Very little blood was lost, and the operation was well borne. An experiment was made by Dr. Seguin upon the amputated arm immediately after its separation. A double-cell faradic battery was in readiness. The three great nerves—median, ulnar, and musculo-spinal—were rapidly laid bare at the upper part of the separated arm. They had lost their normal glistening, opaque appearance, and looked dirty and translucent. To these nerves, properly isolated upon glass, both the weakest and strongest possible currents were applied without producing the slightest muscular contraction in the arm. The median and ulnar nerves were laid bare in the lower third of the forearm, examined in the same manner, and with the same negative result. Neurility, therefore, was abolished in these degenerated nerves, and a positive proof was obtained by this experiment of the correctness of the diagnosis of nerve rupture. Contrarily, the muscles in every part of the extremity were found highly excitable, even feeble currents producing contractions. The interossei muscles, which respond least well, are infiltrated with serum, and are flabby and pale. A hasty examination of the arm showed the tendon of extensor carpi radialis torn across at its upper part; no other muscles are injured. Muscles and tendons on ulnar side, opposite fracture, are covered with plastic exudations. The broken ends of the ulna and radius are not much displaced, but exhibit no trace of an attempt at repair. The nerves are in nowise involved in the fracture. The articular surface of the elbow-joint has lost some of its polish, and appears red.

One of us again saw the patient at the end of September. "I * learned that a degree of temporary relief had followed the removal of the limb. During the rest of the day of the operation, only slight pain was complained of, but on the succeeding days it returned with increasing severity, until, a fortnight later, it was as great as ever, perhaps even worse. Patient has now completely lost self-control; he swears frightfully, throws articles of furniture about, races up and down stairs in a five-story house, because of

* Transcript from Dr. Seguin's memoranda.

the intense burning, tearing and shooting pains, which are referred to the hand and fingers. The worst times are in the afternoon and evening. Patient is then in a terrible state of nervous excitement; he twists and squirms in his bed or chair, chews violently upon a handkerchief, and the perspiration pours from him. His language is interrupted by groans, oaths, and gnashing of teeth. Hypodermic injections of morphia—twenty and forty minims—with chloral, temporarily control pain. The appetite and nutrition have remained fair. Another consultation is proposed to be held between Drs. Caro, Hamilton, and myself. I am prepared to advise the section or resection of the nerves which go to form the right brachial plexus, at a point nearest the intervertebral foramina. The necessity for the performance of such an operation I base upon the diagnosis of injury (rupture) of the brachial plexus in the region where it is bound down to the vessels. I intend to cut the affected nerves above the seat of injury, and thus cause cessation of neuralgia.


The proposed consultation was never held. It was decided to try the controlling influence of a disciplined household upon his mental condition; and he was accordingly sent the next day to the private institution for the insane under the charge of Dr. Barstow. The patient, let it be remembered, was absolutely sane; but it was thought that many of the new surroundings into which he would be thrown might strengthen his self-control and will to modify his expressions of agony.

On the 30th of October a brother of the patient called at my office, and stated that the family desired to place the patient wholly in my care; and he inquired what means, if any, remained, which would give a chance of relief from his great suffering. The operation above referred to was explained to him, and it was agreed that the trial should be made.

On the 2d of November the patient returned to town, and I visited him the same evening. He has changed very much for the better, his color having improved and his weight increased. He no longer cries out or swears because of the pain, but sits in a chair or lies in bed writhing, sweating, and chewing a handkerchief. The stump is of very good shape, and very nearly well. The neuralgia is still terrible, consisting mainly of shooting, tearing pains, together with some burning, and a sense of cramp in hand, all pain being referred to the extremity of missing member. Patient has been most judiciously treated by Dr. Barstow. He has had no morphia or chloroform for a month. He has eaten heartily, and has walked about a good deal.

An examination shows that the stump is sensitive, perhaps more so than is normal; the shoulder is much atrophied, and droops; the scapula is rotated by the action of the serratus magnus muscle. There exists some tenderness over nerves above the clavicle. The

pain is continuous, with exacerbations in the afternoon, and during bad weather. Besides, he complains of his 'hand feeling drawn up,' and of 'sinews working in the arm.' With exception of constipation, no disturbance of any function is present."

November 5th.—The proposed operation is done by Dr. Sands. Present, Drs. Sands, Caro, Geo. A. Peters, Wm. H. Draper, F. N. Otis, T. T. Sabine, John G. Curtis, McCreery, and E. C. Seguin. Drs. Hamilton and Barstow had been invited to attend, but were unable to come. At 10.40 A. M. chloroform was administered, and anæsthesia continued by means of sulphuric ether. An  shaped incision was made, its long arm extending parallel with the outer border of the right sterno-mastoid muscle, and its shorter arm following the clavicle. The flap was then raised, and the connective tissue, with fibres of the platysma myoides and clavicular portion of sterno-mastoid muscle, divided and turned up. The external jugular vein was turned outward uninjured. Across the exposed triangle a vein larger than the external jugular was met with, apparently in very direct connection with the heart (showing systolic impulse,) and, after being tied with two ligatures, was cut across. A little deeper the nerves were exposed without difficulty. It should be added that the latter steps of this dissection were done without cutting instruments. The connective tissue around the nerves did not separate with normal facility; the nerves constituting the brachial plexus were much matted together, and their dissection was by no means easy; still the first rib was plainly felt at the bottom of the wound, the scaleni were visible, and so was the anterior border of the right trapezius. The fifth, sixth and seventh cervical nerves were cut in a lump, a piece fully a quarter-inch in length being excised; the same being done for a thick double cord, which seemed to represent the eighth cervical and first dorsal nerves. The pieces removed looked badly, and the nerves felt more like tendinous cords than like nerves. The surface of section appeared yellowish, showed hardly any trace of secondary fasciculi; and the neurilemma was unmistakably thickened and injected. More of the nerves, (proximal ends) were taken away, Dr. Sands carrying his knife as near the scaleni as was practicable; but even there the sections exhibited the appearances of neuritis. During the operation no hemorrhage worth naming occurred. The carotid and subclavian arteries were both felt, but the phrenic nerve was not seen. Two or three very small arteries and the above-mentioned vein required ligature. The wound was closed by means of stitches placed a quarter of an inch apart, drainage being allowed at the angle of the wound.

This neuritis was not altogether unlooked-for by us. It may prove to be an inflammation which has ascended from the injured point, and which may be successfully treated afterward. Another possibility is, that the nerves have been cut below the seat of injury, in which case the neuralgia will return and persist.

Patient recovered from anæsthesia with much excitement and delirium; an hypodermic injection of sulphate of morphia (two-thirds of a grain, and one-sixtieth of a grain of atropia) being administered before the ether effects had fairly passed off. After 1 o'clock P. M. he slept three hours. At 6 P. M. he is found rational, and moderately exhausted; pulse 120+, skin moist; has some headache; complains of soreness about shoulder, and of severe numbness in absent right hand, "just as when one's foot is asleep." Is chewing a handkerchief as before operation, though this is perhaps from habit. Ordered broths and a draught composed of dr. ss. bromide of potassium and scr. ij. hydrate of chloral, at 11 P. M.

9th.—A certain degree of pain returned after operation. Is quieted by hypodermic injections of morphia, gr. $\frac{3}{8}$, and atropia, gr. $\frac{1}{16}$. Some surgical fever.

10th.—No change in symptoms; a curious sore has appeared on the left ear. It is a superficial dry eschar, about a quarter of an inch square, on outer border of helix, on a level with tragus. Is this a reflex nervous nutrition disorder? Perspires more on right side than left; right brow wet, left quite dry.

26th.—Marked improvement. Numbness, with much burning, still present. Has taken KI. dr. ss. *per diem*. Has m xv. Magendie's solution of morphia (gr. ss.) at midday, m xx. late at night, under the skin. Wound nearly closed.

Dec. 10.—Gaining. KI. discontinued. Has lately taken quinia sulph. gr. v. twice a day; to be continued. Some dozen small blisters have been applied to various parts of stump and shoulder with benefit. Has had exacerbation in changeable, stormy weather. Cigars have seemed to increase effect of morphia injections.

Jan. 1, 1872.—Last week passed through an attack of pneumonia (left lower lobe); defervescence in less than 48 hours. Neuralgia still severe, but decreasing. More self-control. Continue morphia under skin (m xxv. to xl., in two doses), quinia; and ordered cod-liver oil.

April 1st.—The issue was closed about the middle of March; since has had a succession of blisters applied over stump and chest. Has much improved. Now sleeps in daytime and at night; gives much less expression to pain, although, in bad weather or during a change in the weather, he writhes somewhat, and perspires. The pain is of same character as at time of last note; has much burning; very rarely any tearing or lancinating pain. Hyperæsthesia of skin of stump and chest continues. Fingers are still distinctly felt, and are the seat of most pain; the median and index appear glued together. Has noticed a curious associated sensation; which is, that whenever he squeezes strongly with the left hand he feels as if the absent hand were doing the same

thing. There is much atrophy of muscles about right shoulder. The right pupil is smaller than the left;* and he sweats much more on the right than on the left side. General health is excellent, weight being 148 lbs.—greater than ever before. Receives injections at office, m xvii. to m xx. (according to weather) in the morning (10 A. M.) and m xii. to m xv. about 7 P. M.

May 25th.—Since last note has improved in respect to neuralgia. Owing to the fact that he has not taken cod oil for some time, his weight has decreased some twenty pounds. The pain is nearly always burning; very rarely is there any shooting pain. The absent fingers appear to be in the same position as that detailed above. During the past three weeks he has observed more or less burning pain in cicatrix above clavicle; this pain is becoming daily more noticeable. He has also suffered somewhat from end of the stump. Has regularly received hypodermic injections of morphia night and morning, m xvi. and xv. of Magendie's solution (m xv.—gr. ss.) An examination of the stump and shoulder is made to-day. These parts are very much atrophied, the acromion and coracoid processes being quite prominent. The scapula has rotated outward and upward in such a way that the acromion process is raised, the posterior border of the scapula drawn away from the spinous processes of the vertebræ, and the inferior angle made to approach the axilla. There is no tendency to the "wing" deformity; *i. e.*, the serratus magnus muscle is not paralyzed. This one and the muscles raising the scapula (trapezius and levator anguli scapulæ) are the only muscles of the region which have escaped atrophy. Forced chest-expansion is very good on both sides. There exists a lateral spinal curvature in the lower cervical region (convexity toward the injured side), and another in the opposite direction (compensatory or result of pneumonia?) in the lower dorsal region. The end of the stump is very firm and sound; the cicatrix above the clavicle is also in good condition. State of sensibility.—The patient states that he has an extensive surface on the right side that is abnormally sensitive. Light contact and pinching are felt a little less distinctly on this zone than on the corresponding parts of the left side; the æsthesiometer test reveals no difference between the two sides. Cold is perceived a little more distinctly on the left side than on the right. While light contact and pinching are less acutely felt in *the part touched* on the right side, these same irritations (and any others) start the neuralgia with a severity proportionate to the acuteness of the impression. This falsely hyperæsthetic region has the following limits: The entire stump and shoulder; the scapular region, and a little of the back inside of and below the scapula; the axillary region, and the

* This disparity in the state of the pupils was seen very shortly after the operation, but no note made of it.

pectoral region as low as a point one inch below the nipple; the inner anterior limit is along the right outer edge of the sternum up to the supra-sternal notch, where the limit extends quite to the median line, thence taking an oblique course along the anterior edge of the sterno-mastoid muscle, then a little forward so as to include the angle of the jaw and a part of its ramus and body; from the lobule of the ear the line extends backward and downward to the posterior angle of the scapula. The teeth on the right side have been so sensitive that he has not brushed them for months; nor has he been able to comb his whiskers on the same side. We repeat that this abnormal sensitiveness is not a true one, not in the parts touched or pinched, but that irritation of this zone excites the neuralgic pains, these being of the nature of associated sensations. The pupil on the side of the injury and operation is distinctly smaller than that on the sound side (left). The perspiration is more abundant, and appears more quickly upon the right side than upon the left. During the examination the left axilla was moist, but two or three large drops of sweat trickled down the side from the right.

During the last two months the neuralgia has been much less influenced by changes in the weather. It is decided to try applications of the actual cautery to the shoulder and chest. Choice is made of the platinum-tipped cautery, applied at white heat, and in a superficial way (Brown-Sequard's method). Morphia to be continued.

June 22d.—The cautery was applied in all some five times without producing any noticeable relief. Pain is severe, but patient has some hours of sleep, and others of comparative ease, while taking only m xiii. of Magendie's solution night and morning. Neuralgia presents same character, consisting mainly of burning, referred to fingers. These last seem to be in peculiar position above described. Patient is left for the summer under the supervision of Dr. A. Brayton Ball.

December 1st.—Since last note no marked change has occurred. Patient still suffers from much burning and from some lancinating. This is, as of old, referred to the fingers and hand, being felt slightly and seldom in stump or supra-clavicular cicatrix. Hallucination regarding position of fingers continues same. He thinks that he has had more pain in last two months, but this is to be judged in connection with the fact that the morphia has not been increased; takes m xiii. night and morning. Pupils are still unequal. Right side (same parts) still exhibits false hyperalgesia, less marked. Has lately combed whiskers and cleaned teeth on that side. Still perspires more on right side. Right side of neck and other parts have been irritated, and no epileptiform symptoms produced. General health good.

There are a number of points in this history, which, we believe, require more extended consideration.

1. The pathological anatomy of the nerves involved. At the time of the amputation, portions of the three great nerves of the arm—median, ulnar, and musculo-spiral—were removed within two hours after the separation of the limb, and immersed in a weak solution of chromic acid. Two or three weeks later, transverse sections were made of these nerves, and treated in a way to be subsequently described.

During the operation performed by Dr. Sands, on November 5th, pieces were removed from the cervical nerves and from the dorsal nerve which go to form the brachial plexus. These pieces, varying in size from one-quarter to one-third of an inch in length, were cut off as near the scaleni muscles as it was possible to carry the knife. As related in the history of the case, these fragments and the nerve-trunks from which they were taken looked wholly abnormal. The connective tissue surrounding them was hardened and thickened, the nervous cords no longer appeared pearly-white or glistening, and the surfaces of section showed no trace of secondary fasciculi, and no attempt at breaking up into bundles, as are seen when a normal nerve is cut across. These fragments were also immersed in dilute chromic acid, and when they were hardened, transverse sections were cut from them. These sections, and those from the nerve of the arm, were stained by neutral carmine solution, and the water removed from them by successive washings in alcohol and absolute alcohol. They were then made transparent by being floated upon oil of cloves, and finally mounted in Canada balsam dissolved in chloroform.

Before proceeding to the description of the alterations presented by these sections, it may be well to give a cursory account of the appearance of a normal nerve section prepared by the same (Clarke's) method. In section of a normal sciatic nerve* seen with a power of 65 diameters, every nerve fibre is exhibited as a little circle, within which is a hyaline mass, and in the midst of this mass a red dot placed a little to one side of the centre in most cases. These parts are the axis cylinder as the central dot, the white substance of Schwann or myeline as the hyaline mass, and the membrane of Schwann as the circle or rounded ovoid. These circles (varying a little in diameter) crowded together constitute the secondary nerve bundles or fasciculi, which are so large that most of them are clearly seen by the unaided eye. Between the nerve fibres is an uniting substance which appears faintly striated; and here and there are stronger bands of connective tissue (trabeculæ) which are united with the connective tissue around the fasciculus. This is shown as a thick ring, apparently made up by the aggregation of nearly parallel fibrillæ. Around each secondary fasciculus of a spinal nerve there is such a sheath

* All spinal nerves present essentially the same appearance.

appearing as a ring in transverse sections; and these sheaths are united among themselves by more or less loose connective tissue. In this loose connective tissue run blood-vessels, arteries and veins of various calibre. There are small additional blood-vessels enclosed in the perifascicular sheath and in the delicate tissue which separates the nerve fibres.

a. The changes exhibited by the median, ulnar, and musculo-spiral nerves. To the naked eye sections of these nerves show traces of secondary fasciculi, although the picture is far inferior to that seen in the normal section. Under a power of 65 diameters the connective tissue around the nerve and that between the secondary fasciculi appears moderately increased in quantity and density. The perifascicular sheaths themselves have lost their definite outlines, and merge more into the connective tissue lying round about them. The sections of blood-vessels seem but little changed, and only a few granular (yellow) bodies are seen in the interfascicular tissue, mainly in the neighborhood of the vessels. The great alteration is in the nerve fibres. In the fasciculi very few distinct circles are to be seen, the mass constituting the fasciculi appearing as a confused design made up of fragments of circles heaped one upon the other. In none of the remaining circles can an axis cylinder be satisfactorily recognized. In such circles as subsist, the hyaline substance within them (myeline) appears more refracting than is usual, and is often concentrically striated. We have here the lesions characteristic of the Wallerian degeneration, *i. e.*, disintegration of the nerve-fibres, with proportionately little change in the framework of the nerves.

b. The sections from the nerves excised on November 5th. These present an altogether different appearance. To the unaided eye they appear like sections of some dense, indistinctly fibrillated tissue, tendon for example. Under a low magnifying power the general sheath of the nerve is seen very much hypertrophied. The secondary fasciculi vary immensely in size and appearance. A few are still rounded, encircled by a distinct sheath, and fairly filled with nerve fibres in better or worse condition. The majority, however, are broken up into innumerable smaller bundles, the separation being effected by the formation of distinct bands of fibrillated connective tissue in the place of the scanty network described as lying between the fibres in a normal section. Between many of these fragmented fasciculi are huge masses of wavy, dense connective tissue, with abnormally large vessels, and with a great quantity of granular pigment deposit. This yellowish pigment lies principally immediately around the blood-vessels, or in the connective tissue near them.

As regards the nerves themselves, it may be stated in general terms that they are in a state of atrophy. In one fasciculus, for example, there are very few fibres which present the circular out-

line, hyaline mass, and eccentric dot characteristic of the normal fibre seen in transverse section. The vast majority are much smaller than usual (appearing of about the same dimension with 300 diameters as normal fibres do with 65); they vary immensely in diameter, and many are represented only by parts of small circles. No masses of embryonic cells are seen in any part of the preparations.

To resume: The nerves in the upper cervical region present the lesions characteristic of chronic neuritis, viz., much increase and condensation of the framework, with comparatively minor change in the nerve fibres. In other words, the pathological process in these nerves has been primarily hyperplastic, and the nerve atrophy secondary and incomplete; whereas, in the nerves removed from below the axillary space, the nerve atrophy was complete and primary, the changes in the framework very slight. In one case we have the lesions of chronic hyperplastic neuritis; in the other, those of the Wallerian degeneration.

2. Nature and seat of the injury to the nerves.

The absolute anæsthesia of nearly the whole arm exhibited by the patient previous to its removal, and which probably existed immediately after the infliction of the injury, points to a complete solution of continuity in all the nerves which supply the lower arm, forearm, and hand with sensory filaments.* Further, the patient had complete paralysis of muscles situated far above the limit of anæsthesia, those which act upon the upper part of the humerus and some of those moving the scapula. The distribution of motor palsy and of anæsthesia in this case fully illustrated van der Kolk's law of distribution of sensory and motor filaments of one nerve-trunk, viz., that the former are sent to parts which are moved by muscles innervated by the latter.† We therefore had ample clinical reasons for localizing the injury at least as high as those parts of the brachial plexus which lie behind and just above the clavicle, and also for considering that the injury consisted in a complete disruption of the nerve-trunks. Another possibility presented itself to our minds, viz., the tearing out of the roots of the nerves which constitute the brachial plexus, from their attachment to the anterior and posterior aspects of the spinal cord. Such an accident has been placed on record by Flaubert,‡ occurring as a consequence of forced extension made to reduce an old dislocation; but in this case the patient died in a few days with symptoms

* Compare Mitchell, *Injuries of Nerves*, p. 227. Philadelphia, 1872.

† Schroeder van der Kolk. *On the Minute Structure and Functions of the Spinal Cord and Medulla Oblongata*. Translated by the New Sydenham Society. Vol. iv., 1859, pp. 8, 9.

‡ *Repertoire General d'Anatomie et de Physiologie Pathologique*. Vol. iii., p. 55. Cited by Le Bret, *mem. de la Soc. de Biologie*. 1853.

of spinal cord inflammation, corroborated by the autopsy. Guided by the result of this case, and by the fact that our patient had at no time presented any symptom of spinal meningitis or myelitis, we felt reasonably certain that the nerve-roots in his case had not been torn out. Having thus excluded intra-spinal rupture, and determined with certainty the lowest possible limit of the injury, the question arose, whether we could arrive at a still more exact knowledge of the seat of nerve rupture; where in this tract between the intervertebral foramina giving issue to the fifth, sixth, seventh, eighth cervical, and to the first dorsal nerves, and the upper limit of the axillary space, was the laceration most likely to have taken place? It appeared to us impossible to make a satisfactory answer to this question. The microscopical examination of the nerves corroborated the diagnosis reached upon clinical grounds, since the sections taken from the upper part of the cervical nerves showed neuritis, while those cut from nerves below the axilla exhibited the changes of descending or Wallerian degeneration. It is therefore right to conclude that the excision has been made as intended, above the seat of laceration.

In this connection it may not be amiss to recall the exact mechanism of the accident. The patient's right hand was firmly clasping the rammer, and all the muscles of the arm were in activity during the effort of ramming home the charge. The explosion naturally drove the hand forward and outward with incredible violence, the arm following the same direction, and being for the moment in a state of extremely violent extension. So enormous was the strain upon this limb that the patient was projected bodily many feet. We see no reason for not admitting that the fracture of the bones of the forearm occurred at the beginning of this movement of extension. This being granted, it follows that a great strain was put upon the soft parts which still connected the lower part of the forearm with the upper, and that the blood-vessels and nerves were greatly elongated. During this elongation the nerves gave way at their weakest point, *i. e.*, where they are most firmly bound down, and where they interlace and anastomose—behind the clavicle.

Besides Flaubert's case above referred to, we have met with quite a number of instances of obscure nerve injury, caused by the reduction of old shoulder dislocations, but the details given are so meagre as to make the cases quite useless. An exception to this statement is the case recorded by Le Bret.* A young soldier, who had dislocated his right shoulder, underwent the operation of reduction on the same day. The traction was done by men pulling upon a sheet firmly tied around the arm just above the elbow. Immediately after the reduction, without any special pain having been felt, the patient noticed that his arm and forearm were paralyzed.

* *Memoires de la Soc. de Biologie de Paris*, 1853, p. 119.

When seen by Le Bret, five months later, there existed complete anæsthesia below the bend of the elbow, besides palsy of the arm. The corresponding side of the neck had lost motion, and was anæsthetic; the right upper eyelid covered the globe, and vision was impaired; the right iris was slightly contracted. There were some lancinating pains in fingers and arm. The nerves (inner aspect of arm, and above clavicle) were tender to pressure. Some improvement took place in motion of arm and neck, and the ptosis was cured. The author believes that the nerves were torn across in the region of the brachial plexus.

3. The demonstration of persistent muscular irritability at a considerable period after the muscles had ceased receiving nervous influence.

The arm was removed eight weeks after the reception of the injury, and, as related above, while no muscular contractions could be obtained by faradizing the nervous trunks at various points, almost normal movements were produced by the direct application of the current to the muscles themselves, even those (interossei) which had apparently suffered much in their nutrition. The bearing of this experiment upon the question of the independence of muscular irritability might detain us awhile, were it not that this paper has already reached a considerable length. Let it suffice to state that this result agrees with that obtained in the inferior animals. The fact that functional capacity survives in muscles for a period six or twelve times longer* than in nerves, in cases where those organs have been cut off from communication with the spinal cord, has been demonstrated by a great number of physiologists. Among the earlier of these we may name Marshall Hall, J. Muller, Gunther and Schon; the latter fixing the date of loss of excitability in nerve-trunks at eight days after section. Later experiments by Longet, Schiff, Landry, Vulpian, and many others have resulted in positively limiting the time at four days. On the other hand, these observers agree in stating that muscles retain for much longer period the power of reacting under immediate stimuli. Some of Longet's† conclusions on this point are worth reproducing:

"1. In mammals, a motor nerve, when separated from the cerebro-spinal axis, loses all excitability after the fourth day. At that time the application of mechanical, chemical and electrical irritants to any part of the distal end of the nerves is followed by no muscular contraction.

* Dr. Brown-Sequard asserts that there is sometimes no diminution of muscular irritability: he has found it as great as in the normal state 19 months after the whole central end of the facial nerve has been drawn out from its exit at the stylo-mastoid foramen. *Bulletin de la Societe Philomathique*, 1847, p. 83.

† *Traite de Physiologie*, t. ii., p. 619. Paris, 1869.

"2. Contrarily, a muscle whose motor nerve is no longer excitable, will, even after the lapse of twelve or more weeks, respond perfectly to any direct stimulus."

Landry,* however, states that in the human species, muscular irritability under these circumstances is abolished in the seventh week. The almost perfect response of the muscles to stimuli in our case, and their apparently normal structure at the end of eight weeks, completely overthrows Landry's conclusion. The causes of error in the author's observations lay, 1st, in the fact that he was unable to apply the electric current directly to the muscles, although he made use of electro-puncture; and that, 2d, in all likelihood there existed in his cases more or less active impairment of nutrition in the paralyzed muscles, owing to irritation of the nerves at their origin.

Vulpian† rightly insists upon the value of the fact observed by him in animals, that muscles deprived of innervation which do not contract when the electric (faradic?) current is made to pass through the moistened skin, do so fairly when the electrodes are placed immediately upon the muscular substance; and he goes on to throw doubt upon the observations made by clinicians in regard to the early (fourth—eighth days) loss of electro-muscular contractility in certain palsies—the "rheumatic" paralysis of the face, for example. It is to be regretted that in our case the patient's great suffering deterred us from faradizing the muscles of the arm before its amputation.‡ As it stands, our observation is in favor of a prolongation of muscular irritability in man after nerve section for a period quite as long as that determined in the lower animals.

4. Some of the symptoms appear to us especially interesting.

(a) In the first place, there are signs pointing to a paresis of the vaso-motor nerves on one side of the face, neck, and chest. The right pupil was noted as smaller than the left immediately after the operation, and from an early period the patient perspired much more upon the right side than the left. Besides, there was a peculiar condition of sensibility on a large extent of the right side of the body. At one period this is spoken of as hyperalgæsia; but a later examination showed that there was no abnormal tenderness in the part touched, and that the pain produced by contact was felt in the absent arm and hand. Still, it should be borne in mind that the patient's self-control and estimation of the nature of his sensations were not always normal, so that it cannot be asserted that there did not exist, at an early period, true hyperalgæsia. The æsthesiometer certainly taught us nothing. The extensive surface, falsely sensitive, bore the same relation to the

* *Traite complet des Paralysies*, t. i., pp. 40, 41. Paris, 1859.

† *Leçons sur la Physiologie des Systèmes Nerveux*, p. 245. Paris, 1866.

‡ Through causes beyond our control, the galvanic current could not be applied to the nerves and muscles in the above-detailed experiment.

brachialgia that many "tender points" do to ordinary neuralgia. An impression transmitted to the spinal cord, at a point near the portion which gives origin to the nerves supplying the region affected with neuralgia, causes action of the sensory tract connected with these nerves, and consequently produces a *referred* sensation of pain. One of us* had occasion to observe a curious example of this *associated painful sensation* in his own person, last summer. A lower incisor tooth had become the seat of tartar deposit, and the gum below was shrunken, red, and tender to the brush. There had never been toothache. One day a small pimple appeared on a level with the upper margin of the thyroid cartilage on the same (right) side as the unhealthy gum; and during the entire period of growth and maturity of the pimple, pressure (even light) upon it produced an acute pain in the gum around the above-mentioned tooth. The experiment was repeated scores of times; and it was further observed that touching the gum did not produce pain in the pimple. Here an impression made upon a branch of the superficial cervical plexus, transmitted to the sensory tract of the upper cervical cord and medulla oblongata, excited in the latter action of the cells connected with the third branch of the trigemini.

(b) The disturbance of nutrition, which produced a slough upon the left helix, is difficult of explanation. It is well to remember in this connection that Brown-Sequard produces gangrene of the edges of the external ear, at will, in guinea-pigs, by injuring the medulla oblongata.

(c) The burning pain (causalgia of Mitchell) did not appear immediately after the injury; this being in accordance with the rule laid down† by the distinguished author just named. As regards the date of the appearance of this peculiar pain, we can obtain no definite information.

The expressions of agony, in action and words, employed by our patient corresponded singularly with those recorded by Dr. Mitchell in his works upon nerve injury.‡

With reference to the extraordinary severity and persistence of burning pain in cases of injury to nerves, we would recall the fact first distinctly stated by Cruveilhier,§ that loss of the power of perceiving thermal impressions occurs later than the loss of various other varieties of sensibility, and indicates absolute anæsthesia; and we suggest that inasmuch as the thermal sense is the last to disappear in gradual diminution of sensibility, so in a neuralgia caused by irritation of nerve-trunks, this most deeply rooted, or

* Dr. Seguin.

† Mitchell. *Injuries of Nerves, and their Consequences*, p. 197. Phila., 1872.

‡ Compare also, Mitchell, Morehouse, and Keen. *Gun-Shot Wounds and other Injuries of Nerves*. Philadelphia, 1864.

§ *Anatomie Pathologique*, liv. xxxviii., p. 9.

most fundamental mode of sensation is most affected, and burning is felt acutely when common pain and formication have almost or quite ceased. It is well known that extreme irritation of the skin, after producing ordinary pain, causes intense burning; an event frequently met with in surgical practice; and, moreover, the contact of extremely cold bodies with the skin sets up a painful sense of heat.

5. The operation above described is believed to be the only one of its kind ever attempted. Excision or division of the spinal nerves has generally been performed on the smaller branches; and, excepting the case herewith related, has never involved the primary trunks near their points of exit from the spinal canal. Neurotomy, when undertaken for neuralgia of traumatic origin, has, in a great many instances, effected a permanent cure, and in these cases is far more likely to prove successful than when it is performed for the idiopathic forms of the disease. If the nerve-tissue is healthy at the point of section, the operation can hardly fail; yet success has followed the operation in not a few cases where the divided nerve was thickened and inflamed. In the lower extremity, excision of the smaller nerves has repeatedly been performed, and in several instances the great sciatic has been either excised or divided. Dr. Mitchell* reports a case in which Dr. Nott excised an inch and a quarter of the great sciatic nerve, close to its point of exit from the pelvis, for traumatic neuralgia, caused by a gunshot wound of the leg. Amputation of the leg, reamputation of the stump, excision of the sciatic nerve in the popliteal space, and amputation of the thigh, had already been performed in succession without avail. Partial relief is stated to have followed the final operation performed by Dr. Nott.

Other cases of division of the great sciatic nerve are recorded by Malagodi, Mayor, Nelaton, and Jobert de Lamballe. In Jobert's case the operation was performed for sciatica. Pain ceased at once, but death occurred six months subsequently from paralysis and bed-sore.

In the upper extremity, excision of the median and several other branches of the brachial plexus has often been practiced, and with various results.† In some cases the operation has effected a complete and permanent cure; while in others it has afforded no benefit. Several years ago one of the authors‡ treated a patient in Bellevue Hospital who suffered from violent neuralgia and chorea, caused apparently by a neuroma which had formed upon the face of a stump after amputation of the arm near the shoulder-joint. The neuroma was laid bare by dissection, and was found

* S. Weir Mitchell, op. cit., pp. 285, 286.

† Schmidt's Jahrbucher; Bd. cxxxv., p. 220; cxii., p. 218; Bd. cxiii., p. 298. *et seq.*

‡ Dr. Sands.

to be connected with all the descending cords of the brachial, excepting the circumflex. These were pulled downward, and, together with the axillary vessels, divided at about an inch above their seat of attachment to the neuromatous swelling. The neuralgia was relieved by the operation while the patient remained under observation, but the choreic symptoms persisted. He left the hospital about two months after the operation.

In the case which forms the subject of this article, the operation of excision of the spinal nerves was undertaken partly as a last resort, and partly because it was thought that the danger of performing it would be considerably reduced, in consequence of the previous removal of the arm by amputation. It is interesting to observe, however, that no serious nutritional changes, except those affecting the muscles, took place in the parts supplied by the divided nerve-trunks.

Another point of interest is the practicability of the operation, when considered merely with reference to the difficulty and danger attending its execution. Under ordinary circumstances, supposing the nerves to be healthy near the points of section, the operation would cause no embarrassment to a skillful surgeon, and all the cords of the plexus might be exposed and divided without dangerous interference with the neighboring bloodvessels. But, even in the present case, where the nerve-trunks were pretty firmly adherent to the surrounding tissues, their isolation was satisfactorily accomplished by careful dissection; and the wound made by the operation healed readily, without profuse suppuration.

Examination of the nerves excised led to the unsatisfactory conclusion that they were diseased above the line of section; and it is not easy to understand, on anatomical grounds, why any benefit should have followed the operation. The nerve-trunks, however, were divided pretty close to the intervertebral foramina; and, if it be assumed that the cause of pain resided in their proximal ends, it is not improbable that the tension of the, latter may have been diminished, and their relations otherwise favorably altered as a consequence of the handling to which they were subjected previously to their division. Such an explanation seems plausible, from the results that attended an operation recently performed by Professor von Nussbaum. It may also be supposed that a cutting off of a considerable portion of irritated nerve-trunk from communication with the spinal cord diminished the neuralgia, by reducing the total amount of irritation transmitted to the nervous centre.

We may sum up the case by stating that a neuralgia of a class known to resist all ordinary treatment was much relieved by an operation not dangerous in itself. We did not obtain radical success, because we failed to find healthy nerve-trunks at the place of section. The diagnosis of the seat of injury was correct enough, but the ascending neuritis baffled us.

We are indebted to Dr. Caro for a statement of the case as it appeared to him, but as his letter contains nothing that is not recorded in the above history, we take the liberty of omitting it.—*Archives of Scientific and Practical Medicine.*

Case of Facial Paralysis. By GOUVERNEUR M. SMITH, M.D.
(Read before the New York Academy of Medicine, June 5, 1873.)

The brief recital of a case of Bell's paralysis, which has recently come under my care, may prove of interest, as the method of treatment adopted tends to show the correctness of views originally presented to this Academy a short time since by one of its distinguished fellows.

On the 5th of April last, a patient came under my care, suffering with paralysis of the left side of the face. The patient was a gentleman of culture and means, about sixty years of age. Residing for a large part of the year at his country-seat, on the Hudson, and spending much of the time in the open air, he was ordinarily in the enjoyment of excellent health, and manifested his robust condition by a commanding appearance. The occurrence of such local palsy was the occasion of no little solicitude in the mind of the patient, lest it be precursory of a hemiplegic seizure.

In studying the etiology of the malady, it seemed probable that the disorder had been excited by cold, to which the patient had been exposed while riding in the Central Park on the day previous to the one upon which the paralysis was fairly developed. There was no evidence of centric disturbance; peripheral lesion was not marked by any decided local point of irritation.

In speaking of peripheral facial hemiplegia, Aitken remarks: "Although it is not a dangerous form of paralysis, it is one from which recovery is very slow, and in which prognosis, as to complete recovery of symmetry of the face, is uncertain;" and also says, "from four to ten months is the ordinary duration of the affection; but there are instances in which the paralysis yields in twenty-four, fifteen, or even twelve hours, but such cases are exceptional" (Trousseau).

After regulating the bowels of my patient, he was placed under the use of iodide of potassium, and on four occasions electrization by a specialist was applied to the affected side. No counter-irritation behind the ear was resorted to, owing to the absence of apparent local lesion. On the 21st of April the patient had shown little or no improvement. I remembered that Dr. William Detmold had read a paper before this Academy (March 20, 1873.)

entitled "Facial Paralysis treated by a New Method." Not having been present at the reading of the paper, I called upon Dr. Detmold, and he briefly gave me the views he had here expressed, and as since published in the *New York Medical Journal*, May, 1873.

In the case which he has reported he says: "I determined to try what mechanical means would do. I bent a wire into a hook, which I put into the drooping corner of the mouth, and drawing it up, bent the wire over and behind the ear. I recommended the patient to keep it on over night, trusting that, by entirely relaxing the paralyzed muscles, and supporting the dragging weight, I might somewhat relieve the defect." Prompt amelioration followed this method of treatment. Dr. Detmold further says: "It then occurred to me that I might make this instrument still more effective, if I could combine with it a permanent and continuous galvanic current through the paralyzed parts, by having it made of two different metals, thus forming as it were a single cell of a galvanic battery." An instrument fulfilling such purpose was made by Mr. Chester under Dr. Detmold's direction, and the patient at the time of the report was steadily improving. The case had been a chronic one, of sixteen years' duration, and had not before been relieved. In his conclusion Dr. Detmold remarks: "I am unable to say what share in the benefit, or whether any, is due to the galvanic current, to which, on the whole, I do not attach as much importance as to the mechanical support."

Resolving to test the applicability of this method of treatment to the acute case under my care, I procured from Mr. Stohmann a German-silver wire mouth-piece, used by the dentists in holding the mouth open during dental operations. The dentists employ two, one on each side. One of these I bent in such a manner that it would not keep the mouth open, but simply act as a hook comfortably catching the corner of the mouth, and to the outer end fastened a piece of copper wire, which, passing across the cheek, was turned around the ear. The wire passing over the ear being covered with a soft material, was not a source of irritation. As the cheek was quite pendulous, I ordered a bandage to be passed around the head under the jaw, to give additional support.

The relief which followed was significant, for, after using this appliance for two nights, decided amelioration was manifest. Wishing the patient to avail himself of any advantage that might be derived from the galvanic current, I went with him to Mr. Charles T. Chester's, 104 Centre Street, and, giving a wire model as to size, Mr. Chester had prepared this neat instrument, which is a fac simile in principle of the one made under Dr. Detmold's direction. The smooth and easily fitting hook or mouth-piece is made of platinum; the wire running across the cheek and turning

behind the ear is of silver, and to this is adapted a zinc plate, which is covered with velvet, with the view of readily retaining the moisture of either saline, acidulated, or pure water.

The patient on procuring this instrument substituted it for the one I had extemporized, using it at night; convalescence was rapid. Recovery from the facial paralysis was complete in about a month from the time of its incipency. There has been no recurrence of the difficulty; the symmetry of the face is normal.

Several questions naturally arise in this connection. In the first place, was this case one of those occasionally met with, in which recovery takes place without material artificial assistance? and, in the second place, if recovery is due to treatment, how far was it attributable to the mechanical means, and how far to galvanism? In response I would say that, there was scarcely any perceptible improvement in the patient until the "mechanical means" were resorted to; convalescence seemed to date from the night they were employed.

Whether or not the second instrument was a more potent remedial factor, by its galvanic properties, it is difficult to say. The patient was not conscious of any galvanic influence, though there is no question of the passage of a current through the affected side, by means of this appliance, but, as stated in Dr. Detmold's paper, from the periphery to the centre. In regard to the action of this instrument, Mr. Chester has written to me as follows: "I have tested the little galvanic battery, made to apply to the face of Mr. —, in a general way. The covering of the zinc plate, being moistened with water, made a good conductor by the addition of a slight trace of acid, and the plate then applied to (behind) the ear, while the platinum end was inserted in the mouth, I find that it generates a steady current capable of deflecting a galvanometer or sending a telegraph message easily through seventy-five miles of the ordinary telegraph wire."

This case, so far as I am aware, is the first acute one treated by the method suggested by the distinguished fellow to whom allusion has been made.—*New York Medical Journal*.

The Certificates of Family Physicians. By WILLIAM C. WEY, M.D., Elmira, N. Y.

An engagement between a physician and his patient, in its mutual obligations, is as binding, morally and legally, as any other implied contract, and the failure of either party to perform makes him liable for the consequences of his dereliction. In this respect the profession of medicine possesses no advantages over the trades or the ordinary commercial relations of society. Estimated by

such a standard, medicine, while advanced to the dignity of a profession, is surrounded by and made subservient to the laws and usages which govern the arts and crafts, and is equally amenable to judicial review, discipline and punishment. Unlike the arts and crafts, however, medicine is obedient to a law within itself, which may or may not find expression in a code of carefully-framed rules. Long before a written code of ethics found favor in the profession, which is a very modern suggestion, a sense of personal or individual honor among physicians served to keep inviolate the nature and terms of the engagement or contract between them and their patrons. The force and character of this agreement, though not strengthened by a written code, simply finds amplification in its precepts and declarations.

In a better, in one sense, though not in a more scientific or learned age, when a higher standard of honor prevailed, a written code was not required. Ignorance of professional ethics could not be accepted in extenuation of their violation. In a looser period, with cheapened education, and, as a consequence, diminished honor and responsibility, a code of rules became necessary for the purpose of keeping the ranks in the profession informed and educated up to the standard of accountability current among the wiser and more loyal members of the brotherhood. In these days, as in former days, with or without a written code, a few lead the way, and the many follow or disregard the call, as they are impelled by education, habit, policy, or some other motive.

I am led to consider this subject in connection with the question—"Ought a family physician to grant a certificate in case of application for life insurance?"

I have no hesitation in asserting that it is no part of his duty to furnish information to a life insurance company in respect to the health of individuals who may have placed themselves under his professional care. Not only is it no part of his duty as a medical man, but it is virtually a betrayal of the trust and confidence imposed in unreserved relations between patient and physician.

Even with knowledge that the person to be insured is, and always has been, in such absolute health as to make reply to the questions asked on such an occasion a mere matter of form, and an endorsement of his physical and mental state, like endorsement of his credit or character, it is quite as much a professional act and service as if the physician's statement raised a doubt in respect to the integrity of the applicant's pulmonary or psychological functions.

If it is a friendly office purely, it carries professional significance along with it, thereby violating obligation on the one hand under cover of a personal favor, and communicating valuable information to a life insurance company on the other.

If the certificate is given for a fee, paid indifferently by the party seeking to be insured or by the company, it suggests an imputation that a moneyed compensation may influence the judgment to be rendered. This objection, in view of the paltry sum usually paid by an insurance company, is scarcely worthy of consideration. In the former case, it may be well to observe that an opportunity is offered an unscrupulous applicant and an equally unscrupulous "family physician" to combine, and for a purpose to produce a certificate, which shall reveal a standard of health upon which a policy of insurance will be sure to follow. If a physician, occupying the position of medical examiner for a highly reputable life insurance company, can be found so culpable and criminal as to recommend a consumptive, in the last stages of disease, as a first-class risk, on whose life a policy is issued, it is not difficult to conceive of collusion between an applicant and a family physician, prompted by motives equally offensive and condemning.

It is exceedingly disagreeable to dwell on this feature of the subject, as evidencing loose morals in the profession. An ideal standard of medicine takes no cognizance of such illustrations of baseness. Every-day practical experience with the profession as it is, and not as it should be, or indeed as it would be if raised to an even or uniform basis by education, has forced upon us the unwelcome conviction that, in spite of codes and journals and books and teaching from an endless variety of sources, the *average* men in our ranks are not above suspicion of being governed by selfish and mercenary motives.

The opinion of a reliable family physician, far beyond the recommendation of a medical examiner, carries weight with a life insurance company. Hence the importance of obtaining his approval of a risk. Paradoxical as it may appear, the physician knows the applicant, the corporeal applicant, more intimately than he knows himself. In the undisguised character of patient, his physical, mental and moral attributes have been clearly revealed to his attendant. Nothing has been withheld, simply for the reason that to keep back information would limit the ability of the physician to render prompt and efficient aid and service.

Considering the confidential relations thus engendered and the value of the information acquired by the physician, the usual questions asked in this connection by a life insurance company—"Have you been in the habit of seeing him frequently? Have you given him medical attendance? If so, for what diseases?"—must appear like an attempt harshly to invade the precincts of the sick-room, and cause the medical attendant to betray the interests of those who have implicitly confided in his truth and honor.

The questions above given cover the whole ground of a physician's intimate intercourse with his patient, laying bare his responsible and guilty acts as well as the infirmities for which he is not accountable.

Surely it is not the object of life insurance companies to seek to compromise the office of family physician, or to invite, or for compensation to engage him to do violence to his scruples and convictions. The custom of requiring a family physician's certificate in application for life insurance was established as a matter of business, without considering the nature of his engagement to his patient or the extraordinary demand which it exacted.

It is remarkable that a common professional sentiment did not, long ago, protest against such an attempt to procure information, on the ground, already mentioned, of infraction of ethics, and disregard of individual obligation and propriety. That a more correct estimate of this question is current in the profession I am disposed to believe, from pretty large observation among my colleagues, and from the more general extension of life insurance interests in every city, village and hamlet in the State. The subject is thus brought directly to the attention of medical men, and they are compelled to give it more than usual scrutiny—such scrutiny as embraces the delicate nature of the duties of the family physician in a specific as well as in a more enlarged and comprehensive field.—*Med. Record.*

ARTICLE VII.—*Notes of an Interview with Brown, the "Mind-Reader."* By HENRY M. LYMAN, M.D., Prof. of Chemistry, Rush Medical College, Chicago.*

At 5 o'clock P. M., August 13, 1873, a small party of physicians, clergymen, and gentlemen interested in scientific studies, were assembled by invitation of the pastor, Rev. C. D. Helmer, in the parlors of the Union Park Church in this city, to meet the young gentleman whose peculiar endowments are attracting considerable attention at the present time. He soon appeared, with his mentor, Mr. Kelley, and proceeded at once to business.

Mr. Brown is a young man, twenty-one years of age; about five feet eight inches tall; would weigh not far from one hundred and twenty pounds; has dark hair, eyes and complexion; has a frank, open countenance; his manner is quick and alert; but there is about him nothing which would suggest the possession of any unusual endowment. His education has been that of a country boy in the public schools, and his occupation is that of a machin-

* Received too late for insertion in its proper place.

ist. His companion, Mr. Kelley, an elderly gentleman, well and favorably known by some of the residents of this city, stated that from infancy Mr. Brown's mother considered him a strange child, rather peculiar in his ways; but it was only eight years ago that his singular nervous susceptibilities were discovered. At that time, while wrestling one day with another boy, his opponent happened to brush the back of his left hand across his forehead. Instantly flashes of light seemed to radiate from his head. A repetition of the conditions was followed in every instance by the same result. This arrested his attention, and led him to experiment in various ways relative to the effects of physical contact with other persons, until he arrived at the discovery that if, when his eyes were closed, the back of the left hand of another were pressed against his forehead, his movements were subjected to the guidance of that person's will as long as such contact was maintained. To secure this subordination, the left hand must be used; and the limb must be a perfect member: arms that had ever been broken or seriously injured would not answer the purpose. Nor could this peculiar guidance be exercised by any one at all under the influence of liquor.

Having thus introduced his protégé, Mr. Kelley stated that if any one of the party would conceal something, anywhere he pleased, Mr. Brown would conduct him to the spot. I therefore placed my lancet-case upon the projection of the middle hinge of a door on the right side of the lobby of the church, and returning to the parlor I determined to fix my thoughts, while being led by Mr. B., in the first place upon the white door-knob of the parlor door, then upon the knob of an opposite door, then upon the left-hand extremity of the lowest step of the stairs on the left side of the lobby, and finally upon the location of the lancet-case. I then gave my left hand to Mr. Brown who had been carefully blindfolded. Requesting me to keep my arm fully extended, and grasping my left hand with his left hand, he placed the palm of his right hand for nearly a minute upon my forehead. At the first instant of contact his muscles were tranquil, but almost immediately his hand began to tremble, and to tremble more violently the longer the contact was maintained. Having thus touched my forehead, he placed the palm of his right hand upon his own forehead for about ten seconds, and then quickly applied the back of

my left hand to the same place. He at once began to move; and concentrating my thoughts as rapidly as possible upon the path which I had previously marked out in my own mind, I found myself speedily dragged along to the parlor door, where Mr. B. bowed his head to the white door-knob. Then raising himself he began to move towards the other door before I fairly knew what he was about. After taking two or three steps in that direction he seemed to waver, and being now recovered from the mental confusion incident upon surprise, I concentrated my thoughts upon the stairs, and was immediately led to the left-hand extremity of the lowest step of the stair in the lobby. Here he stopped, and seeming inclined to bend his body downwards, I mentally addressed him the words, "Down! down! down there!" He immediately bowed his head till the forehead almost touched the step, and said, "It is there;" at the same time letting go my hand. We had not traversed the last stage of the route which I had planned, but it was evident that as long as physical contact was preserved, the direction of the course of his movements was largely under the control of my own will.

Returning to the parlor from which we had started, Dr. I. N. Danforth concealed his knife in a hymn-book which was placed upon a pile of books in an adjoining room, and then gave his hand to Mr. Brown. After perfecting the contact by the usual manipulations, he started with the doctor upon a long and devious chase all around the interior of the building, but finally led him to the book which contained his knife. Dr. D. is a small man with sandy hair, a slender frame, and a nervous-sanguine temperament; and having failed in his intention to direct Mr. Brown by the *shortest possible course* to his knife, we decided to repeat this experiment with a person of different temperament,—Dr. C. W. Earle, a large and powerful man, with dark hair and complexion.

Dr. Earle suspended his watch in a closet, and then surrendered his hand to Mr. B. who led him a wilder goose chase than he had led Dr. Danforth. After dragging him up stairs and all over the audience-room of the church, Mr. Brown gave up the search, saying that he must rest. He stated that if overheated his power was greatly diminished, and that it was greater in cool weather than in hot. While resting we ascertained that his temperature was $98\frac{1}{2}^{\circ}$ F.; pulse normal. Temperature of the atmosphere 75°

F. Dr. Earle stated that during the experiment he had concentrated his thoughts upon the watch itself rather than upon the place of its concealment. Cautioning him to converge his attention upon the locality, Mr. Brown resumed the experiment, and immediately dragged the doctor at top speed to the place where his watch was hanging. During the time of his rest he had no communication with any one who knew where the article had been hidden.

The rapidity and certainty of his movements during these experiments were remarkable. His gait was almost a run; and he steered clear of every obstacle with the precision of ordinary eyesight. This, so long as his companion used his own eyes. We therefore proceeded to vary the experiment. Having arranged the blinder, one of our number placed a small watch-key upon the centre of the mat before the parlor door. Then placing himself in communication with Mr. Brown, he kept his own eyes continually closed. It was evident that there was no guiding impulse in action. The pair stumbled aimlessly around the room, over the chairs and against the partitions,—the blind leading the blind,—until Mr. B. exclaimed, "There is something very strange about this gentleman; I think you must be experimenting with me!" He then stopped, and removed the handkerchief from his eyes; but being assured that all was right, he renewed the search. His companion now kept his eyes open, and was soon taken to the place where he had deposited the key. He stated that while his eyes were closed he lost all idea of direction, and could not tell in what part of the room he was; but when his eyes were open, as soon as he addressed Mr. Brown, mentally, with the words "Go there, go there!" he found himself instantly obeyed.

Another experiment proved that the volitional impulse might be conveyed through the medium of a compound conductor. Let A represent Mr. Brown; let C represent the individual by whom he is to be guided; and let B represent a third person. Now if C with his left hand grasps the naked left arm of B, while the back of the left hand of B is applied to the forehead of A, he can guide the movements of A, even though both A and B are blindfolded and previously ignorant of the place to which C would direct A. This was demonstrated to our complete satisfaction.

The last experiment of the series was the following: Placing

myself in communication with Mr. Brown, I requested him to point in the direction of the object upon which my thoughts were concentrated. I had fixed upon the top of the church-spire for the object; but no sooner had we commenced the experiment than I became aware of a ludicrous uncertainty regarding the proper angle of elevation of the line which should lead my thoughts to the top of the spire. Mr. B. was whirling me rapidly round and round, so I hastily abandoned the attempt to soar so high, and endeavored to concentrate my will upon an imaginary line up and down the centre of the eastern *facade* of the church. He at once ceased to turn around, and after wavering a few seconds he pointed, not exactly east, towards the centre of the *facade*, but east-north-east, towards the centre of the tower which supports the spire upon which my thoughts had been originally directed.

In answer to our inquiries, Mr. Brown stated that when placed in communication with another person, as previously described, his movements are guided by a light which seems to stream from his head in the direction of the object which he seeks. This light appears to him very much like a gas-light viewed through smoked glass. At the commencement of an experiment, or if it does not proceed in a satisfactory manner, the light seems broken up into numerous smaller lights which flash distractingly in every direction; but soon they all concentrate into a single flame which seems to dart in the direction which he must follow. Sometimes the light beams without deviation from the right course; but often it describes a zig-zag path for his guidance.

He stated that his health was perfect, and that he seldom felt fatigued by his exhibitions, though it is necessary for him to rest often between the experiments in order to maintain the acuteness of his faculty. Sometimes, however, experiments with certain individuals are very exhausting, as, for instance, his experiment with Dr. Earle. The peculiarity of his case consists in the fact that his singular nervous susceptibility does not require the production of artificial somnambulism or *hypnotism* as the condition of its manifestation; nor does it at all interfere with the integrity of his will. It is not in obedience to an irresistible impulse that he pursues the luminous apparitions which seem to proceed from his head, but he can always follow or refrain from following their guid-

ance, precisely as a person in the dark can follow or refrain from following the movements of a lantern which flickers along the path before him.

No. 533 WEST ADAMS ST.

Editorial.

Mind Reading?

Quem Deus vult perdere prius dementat.

"Who sups with the Devil should have a long spoon."

Sanitary.

The note of warning sounded by the JOURNAL in the early part of the season, concerning the danger to public health threatened by the filthy condition of the city, has been obeyed too late by the Board of Health, which, with its usual tardiness, has attempted to shut the stable door after the steed has been stolen. It has commenced its work of "prevention" when the pestilence is in our midst.

The Board has, at last, after months of delay, appointed a Sanitary Superintendent who can legally perform the functions which have, for the past four months and a half, been subjected to maladministration in defiance of law.

The newly appointed officer, Dr. Ben. C. Miller, accepts the position under the most unfavorable auspices, with an epidemic of cholera threatening him in front, with "confusion worse confounded" in his rear; without practical experience in the duties of his new position, and with the odium of public distrust and contempt which has been earned for the position; he has before him an herculean task, viz., to reduce official chaos of six years accumulation to order, to lay the foundation for a system of sanitary statistics, to fight the pestilence, and to restore to public confidence that which has thus far merited only ridicule and contempt.

To accomplish all these, Dr. Miller brings into the contest youth, energy, a large share of administrative and executive ability, ambition, industry, and integrity of purpose, and, what is

perhaps quite as important, the prestige of success in the important official positions which he has hitherto filled. We wish him success most heartily, although we do not see how the wish can be realized under the operation of such a stupid enactment as that to which the Board of Health owes its existence.

The only sensible reform movement in sanitary matters in this city will be that which, beginning by abrogating the law which created the present Board of Health, thereby legislating it out of existence, continuing by utilizing the talent and ability now contained in the Health Department, by excluding the useless lumber which now encumbers it, shall conclude by organizing a responsible Department (not an irresponsible Board) which shall be, what this has never been, a conservator of public health and vital statistics.

H.

County Hospital.

After much persuasion, and, rather, too, mature deliberation, the Board of Supervisors of Cook County, have at last determined upon and selected a site as a preliminary step to the erection thereupon of a new County Hospital.

The site selected, the corner of 12th street and Ashland avenue, in what is now the southwest corner of the city, is, we believe, one whose excellence will become more and more apparent with the lapse of time.

Aside from its general advantages in relation to the whole city, it will provide hospital accommodation for that district, the West Side, where it is most especially needed and entirely wanting hitherto. The South and North Sides of the city are at present comparatively well supplied with hospitals, while the West, although containing the largest area, the largest population, and the greatest number of the classes of population more especially requiring hospital accommodation, has none whatever.

While there has been good ground of complaint against the Board of County Commissioners for the delay in making their selection of this site, we are disposed to overlook their past delinquencies in this regard, on the condition that they will display equally good judgment in the adoption of a plan for the building. Let us have no more mediæval castles, with

with "Massive towers and donjon keep,"
and "Flanking walls that round them sweep,"
"Dungeons dark where" *patients* "weep."

These are things of the past, which sanitary science repudiates. Too much money has already been squandered in this city upon these illustrations of mediæval art, and sanitary nescience, and let us fervently pray that no more be contributed to the construction of these death-traps.

We commend to the careful consideration of the supervisors the suggestions of Dr. John M. Woodworth, Supervising Surgeon of the Marine Hospital, concerning the erection of Pavilion Hospitals, roughly built, of cheap material, with due attention to ventilation and cleanliness made necessary by the demands of sanitary science, which could be destroyed as soon as they should become foul and unhealthful, and rebuilt many times at a less cost than is now required to construct an ordinary hospital.

Let every physician in the community use his influence to prevent a great waste of public money and a great injury to public health which would inevitably accrue from the rejection of modern ideas in the construction of the new County Hospital. Let it be impressed upon the minds of the commissioners that the object of the hospital is not to enrich contractors, not to be a monument of the ignorance and stupidity of its constructors, but to preserve public health.

H.

The Cholera.

Amidst the numerous conflicting statements, and diverse opinions regarding this disease, which have prevailed, during the past six or eight weeks, in the town of Lake, on the southern border of the city, and the impossibility of arriving at any definite conclusions regarding it, the JOURNAL has refrained from reporting any of the cases heretofore, in order to avoid increasing the panic which threatened more serious consequences than did the disease. To-day, August 22, in company with Sanitary Superintendent Ben. C. Miller, and Acting Inspector Simons, we made a personal and thorough inspection of the "infected district," lying south of thirty-ninth street, west of State and east of Clark, and altogether

outside of the city limits, and in the town of Lake. The cholera hospital was first visited, and was found in excellent order, under the care of Mr. Rofe, the newly appointed interne. There were found here three convalescents presenting no symptoms sufficiently characteristic to indicate the pre-existence of any special malady. In a number of private residences visited, the patients had either died or recovered, but two convalescents were found in the same negative condition. At No. 971 Butterfield Street, a German child of four and a half years had just died after an illness of twelve hours. The evidence furnished by inspection of the corpse a few minutes after death indicated clearly that the cause of death had been cholera. In the same house a child of about three years had diarrhoea.

The district is apparently in good sanitary condition, the surface of the ground dry, and there is no stagnant water to be found. The houses are generally of two stories, of wood, and new, the inhabitants principally German. The water supply has hitherto been bad, having been obtained from what are called by courtesy "wells," one of which when measured was found to be two feet deep and three feet from the surface of the ground; these have been rendered unavailable by the Board of Health, and the Board of Public Works has provided a supply of pure lake water, with the necessary hydrants. There is no necessity whatever for alarm, and unless one should use some diligence and have unusual facilities, as in our own case, for the detection of the disease, it would escape notice altogether.

The measures taken by Dr. Miller and Dr. Simons, for the detection and arrest of the disease in its preliminary stages, have been very effectual, and the prospect is now, that with continued efforts in the same direction, the few remaining germs of the disease will be eradicated.

H.

At the last special meeting of the Chicago Society of Physicians and Surgeons, held on Monday, 18th of August, certain irregularities were perceptible in the proceedings which merit especial attention from the officers and members, in order that their recurrence may be prevented.

Of these irregularities two were especially prominent; first, the publication of the proceedings by the reporters of the secular

press, not having been previously revised and corrected by the regular reporter of the Society, whereby many errors and misunderstandings might have been suppressed; and secondly, the participation in the proceedings by persons not members of the Society, without invitation of, or introduction by, the presiding officer, some of whom are notoriously disreputable, and whose names alone published in connection with the Society will be sufficient to constitute a stain upon its hitherto stainless record.

We hope that, in future, when the proceedings shall be deemed to possess sufficient interest to the general public, to excuse their publication in the secular press, they may be reduced to writing by the regular reporter of the Society, and transmitted through that channel; and further we trust, that, should the meetings of the Society again be intruded upon and its discussions interrupted by unauthorized and uninvited guests, the presiding officer will promptly silence all such, in the most summary manner. It is time that these impudent pariahs of the profession be taught their true place, and that is, outside the pale of respectable association.

H.

Books and Pamphlets.

The absence from the city of the head of our review department must be our apology for omitting to notice a large number of books and pamphlets received during several weeks past. We shall endeavor in our next to make good all deficiencies in this regard, and notice all such seriatim and in detail.

H.

A Move in the Right Direction.

At the recent meeting of the State Medical Society the following resolution was introduced by Dr. Ira Oatman, of Sacramento:

"Resolved, That it is the duty of, and we hereby recommend to, the Legislature of California to pass a law making it a misdemeanor for any person, for any purpose whatever, who is not a graduate of some institution of learning authorized by law to confer the degree of 'Doctor of Medicine,' who shall place before or after his or her name, in any manuscript, label, wrapper, card, handbill, circular, newspaper, pamphlet, magazine, book, or any advertisement, the word 'Doctor' or the abbreviation M.D. or Dr., or any others signifying directly or constructively that the person is a graduate of such an institution, or who shall authorize or sanction the same by others in his or her interests; and that any person found guilty of such misdemeanor shall be punished by a fine of not less than ——— dollars, or imprisonment for not less than ——— years, or by both such fine and imprisonment."

—*Western Lancet.*

Illinois State Medical Society.

SECRETARY'S OFFICE,
No. 296 W. Monroe St.,
Chicago, July 1, 1873. }

At the last Annual Meeting of the Illinois State Medical Society, held in the city of Bloomington, May 21st and 22nd, 1873, the following officers were elected for the ensuing year, and the following committees appointed to report at the next meeting of the Society, to be held in the city of Chicago, on the third Tuesday of May, 1874.

T. D. FITCH, Sec.

Officers—President, T. F. Worrell, M.D., Bloomington; 1st V. President, E. L. Holmes, M.D., Chicago; 2nd V. Pres., S. H. Birney, M.D., Urbana; Treasurer, J. H. Hollister, M.D., Chicago; Permanent Sec., T. D. Fitch, M.D., Chicago; Assistant Sec., Wm. E. Quine, M.D., Chicago.

STANDING COMMITTEES.

Board of Censors—David Prince, M.D., Jacksonville; A. L. McArthur, M.D., Rockford; J. L. White, M.D., Bloomington.

Committee of Arrangements—N. S. Davis, M.D., Chicago; Wm. E. Quine, M.D., Chicago; Charles G. Smith, M.D., Chicago; Edwin Powell, M.D., Chicago.

Committee on Practical Medicine—S. K. Crawford, M.D., Monmouth; John Wright, M.D., Clinton, DeWitt county; A. K. Van Horn, M.D., Jerseyville, Jersey county.

Committee on Surgery—W. P. Pierce, M.D., Lemont; R. Roskotten, M.D., Peoria; E. R. Willard, M.D., Wilmington.

Committee on Obstetrics—S. C. Plummer, M.D., Rock Island; C. T. Horner, M.D., Naples; Robert Boal, M.D., Peoria.

Committee on Drugs and Medicines—Wm. E. Quine, M.D., Chicago; G. Wheeler Jones, M.D., Danville; E. P. Cook, M.D., Mendota.

Committee on Necrology—G. W. Albin, M.D., Neoga; J. O. Hamilton, M.D., Jerseyville; J. K. Secord, M.D., Elmwood.

Committee on Ophthalmology—E. L. Holmes, M.D., Chicago; J. P. Johnson, M.D., Peoria; F. C. Hotz, M.D., Chicago.

Committee on Otology—Samuel J. Jones, M.D., Chicago; Charles Hunt, M.D., Dixon; Thos. Galt, M.D., Rock Island.

SPECIAL COMMITTEES.

Committee on Idiocy—C. T. Wilbur, M.D., Jacksonville.

Committee on Galvano-Therapeutics—David Prince, M.D., Jacksonville.

Committee on Local Functions of the Brain—Charles W. Earle, M.D., Chicago.

Committee on Phthisis Pulmonalis—J. M. Hutchinson, M.D., Chicago.

Committee on Stricture of Urethra—E. Andrews, M.D., Chicago.

Committee on Diseases of Respiratory Organs—Daniel Lichty, M.D., Rochelle.

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

Drs. A. H. Luce, Bloomington; J. O. Hamilton, Jerseyville; C. Goodbrake, Clinton; E. P. Cook, Mendota; W. P. Pierce, Lemont; David Prince, Jacksonville; C. T. Horner, Naples; J. H. Hollister, Chicago; W. W. McMann, Gardner; S. H. Birney, Urbana; Charles W. Earle, Chicago; J. B. Walker, Mason City; F. B. Haller, Vandalia; W. E. Quine, Chicago; E. R. Willard, Wilmington; J. S. Whitmire, Metamora; E. R. Travers, Amboy; J. P. Mathews, Carlinville; G. W. Hewitt, Franklin Grove; D. W. Young, Aurora; T. D. Fitch, Chicago; O. W. Moore, Braceville; John Lyttle, Leroy; A. C. Rankin, Loda; O. Everett, Dixon; F. H. Davis, Chicago; J. G. Curtis, Otter-

ville; S. C. Plummer, Rock Island; F. M. Wilder, Chicago; J. L. White, Bloomington; A. L. McArthur, Rockford; N. B. Cole, Bloomington; R. E. McVey, Waverley; C. Armstrong, Gurley; Andrew McFarland, Jacksonville.

DELEGATES TO STATE MEDICAL SOCIETIES.

Indiana—Drs. George Wheeler Jones, and T. N. Booe, Loda.
Ohio—Drs. E. W. Gray, Bloomington, and Ellsbury, Mason City.
Michigan—Drs. Moses Gunn, Chicago, and E. L. Holmes, Chicago.
Wisconsin—Drs. A. L. McArthur, Rockford, and Irwin, Loda.
Iowa—Drs. T. D. Fitch, Chicago, and Thos. Galt, Rock Island.
Missouri—Drs. C. R. Parke, Bloomington, and J. O. Hamilton, Jerseyville.
Minnesota—Drs. T. F. Worrell, Bloomington, and E. R. Willard, Wilmington.

Illinois Institution for the Education of Feeble Minded Children.

This Institution, which was inaugurated in 1865 as an experimental school for the education of feeble minded children, has been so successful in training this unfortunate class that at the last session of the General Assembly it was organized upon an independent basis, and was incorporated as one of the permanent charitable institutions of the State, thus completing the noble circle of public charities of the commonwealth of Illinois.

The design and object of the Institution is to furnish the means of education to children and youth of feeble minds, who are deprived of educational privileges elsewhere, and who are of a proper school-attending age. It is designed for those so deficient in intelligence as to be incapable of being educated at common schools, who are not epileptic, insane or deformed.

The education furnished by the Institution will include, not only the simpler elements of instruction usually taught in common schools, where that is practicable, but will embrace a course of training in the more practical matters of every-day life; the cultivation of habits of decency, propriety, self-reliance, and the development and enlargement of a capacity for useful occupation.

The combination which this Institution presents, of practical medical care and proper physical and mental training, with efficient educational resources, will supply, it is hoped, a want which has long been felt and imperatively demanded by this unfortunate class of children and youth of the State.

The improvement and progress of the pupils have been very encouraging, and parents and friends in almost every instance have expressed satisfaction with what has been accomplished in the short time since the school was organized.

The Institution is open to the inspection of the public at all reasonable hours; and all are not only cordially invited, but are earnestly requested, to visit the school.

It is a State Institution, and board and tuition are free during the school year of ten months.

It is the desire of the Trustees to ascertain accurately the number of this unfortunate class of persons in the State, and persons knowing the residence of any in Illinois will confer a favor by reporting the same to the undersigned, as it is desirable that reliable statistics may be gathered, in order that proper legislation may be made in their behalf.

The next school year will begin about the first of September, and those desiring to apply for the admission of pupils should do so at once, as the accommodations are limited.

Applications for admission, information, etc., should be directed to

DR. C. T. WILBUR, *Supt.*,
Jacksonville, Illinois.